

FOREIGN BIRDS

FOR CAGE AND AVIARY.

(PART I)

A.G. BUTLER.

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FOR SCIENCE

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NATURAL HISTORY

FOREIGN BIRDS

FOR CAGE AND AVIARY.

BY

ARTHUR G. BUTLER,

PH.D., F.L.S., F.Z.S., M.B.O.U., ETC.

PART I.

THE SMALLER FOREIGN BIRDS.

ILLUSTRATED.

"THE FEATHERED WORLD,"

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ILLUSTRATIONS.

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	PAGE		PAGE
Alario Finch, Head of	109	Hybrid, Bicheno-Zebra Finch	179
Bluebird, Head of	24	„ Grass Finch	172
Bluebirds or Blue Robins	25	„ Parson Finch-White Bengalee	167
Bulbul, Red-vented, Head of	34	Java Sparrows	183
Bulbuls, Red-vented	35	Mannikin, Three-coloured, Head of	182
Bunting, Rock	117	„ Three-coloured, Black-headed and White-headed	181
Cardinal, Red-crested, Head of	136	Mesias, Silver-eared	29
Cardinals, Green, Red-crested, and Virginian	135	Pekin Nightingale, Head of	28
Cordon Bleu	158	Rock Thrush	18
Cuba Finches	148	Shama, Indian	23
Dayal Bird	21	Singing Finch, Green	106
Diamond Sparrows	169	Siskin, Black-headed	96
Finch, Bicheno's	172	Sivas, Blue-winged	31
„ Crimson	161	Sugar Bird, Blue	73
„ Gouldian, Black-headed and Red-headed	163	„ „ Yellow-winged	72
„ Grass, Long-tailed	166	Tanager, Black-backed	79
„ Grass, Masked	165	„ Festive	90
„ Grass, White-eared	165	„ Magpie, Blue and Archbishop	77
„ Guttural (male and female), Lined, Reddish, White-throated, and Bluish	149	„ Superb, Head of	81
„ Parrot	162	„ Violet, Scarlet and Superb	75
„ Parson	167	„ Yellow	82
„ Pileated, Head of	133	Tits, Red-sided	32
„ Quail	176	Waxbills Violet-eared	159
„ Red-headed	175	„ Zebra	154
„ Rufous-tailed	170	Weaver, Napoleon, Head of	194
Fruit Sucker, Blue-winged	44	White-Eye, The	62
„ „ Gold-fronted	42	„ Chinese, Head of	62
Honey-Eater, Lewin's	58	Whydahs, Giant, Paradise and Crimson-collared	191
„ „ Wattled	71	„ Paradise, Heads of	189
„ „ Yellow-tufted	58	Wood Swallows, Dusky	55

CONTENTS.

	PAGE		PAGE		
Aviaries and Management	7—9	95; Black-headed Siskin, 96; Hooded Siskin, 96; Pine Siskin, 97; Totta or South African Siskin, 97; Desert Trumpeter Bullfinch, 97; Rock Sparrow, 98; Yellow-throated Rock Sparrow, 98; Lesser Rock Sparrow, 99; White-throated Rock Sparrow, 99; Southern Rock Sparrow, 100; Cape Sparrow, 100; Grey-headed or Swainson's Sparrow, 101; Desert Sparrow, 101; Yellow Sparrow, 102; Golden Sparrow, 102; Saffron-Finch, Pelzel's Saffron-Finch, 103; Yellowish Finch, 104. <i>Serins</i> or <i>Canaries</i> —Cape Canary, 104; Sulphur Seed-eater, 105; St. Helena Seed-eater, 105; Green Singing Finch, 106; White-throated Seed-eater, 107; Grey Singing Finch, 107; Yellow-rumped or Angola Serin, 107; Himalayan or Red-fronted Seed-eater, 108; Alario Finch, 108. <i>Rose Finches</i> —Scarlet Rose-Finch, 109; Sepoy Finch, 110; Purple Rose-Finch, 110; Blood-stained Finch, 110; Japanese Bullfinch, 111; Pine Grosbeak, 111; Long-tailed Rose-Finch, 112.	63—64		
BABBLERS (<i>Cratropodidae</i>)	44—51	Spotted Panther-bird, 64.	59—61		
Jay-Thrush, Chinese, 44; Masked, 45; Collared, 45; White-crested, 46; White-throated, 47; Black-gorgeted, 47; Striated, 48. Laughing-Thrush, Red-headed, 48; Spectacled Thrush, 48; Black-headed Sibia, 49; Golden-eyed Babbler, 50; Grey Struthidea, 51; Grey Hypocolius, 51.		FLYCATCHERS (<i>Muscicapidae</i>)	41—44		
BLUEBIRDS (<i>Sialia</i>): Blue Robin	24	Blue Wren, 59; Rufous-bellied Niltava, 60.			
BLUETHROATS (<i>Cyanocitta</i>)	21	FRUITSUCKERS (<i>Chloropsis</i>)	41—44		
BULBULS (<i>Pycnonotidae</i>)	34—40	Gold-fronted, 41; Malabar, 43; Blue-winged, 43.			
Black, 34; Red-vented, 35; Black-capped, 36; Syrian, 36; White-eared, 36; Yellow-vented, 37; Dusky, 38; Chinese, 38; White-cheeked, 39; Red-eared, 39; Brown-eared, 40; Rufous-bellied, 40; Yellow-crowned, 40; Spotted-winged, 40.		GRASSFINCHES AND MANNIKINS (<i>Munina</i>)	161—175		
Bullfinch, Desert Trumpeter	97	Crimson Finch, 161; Parrot Finch, 161; Three-coloured Parrot-Finch, 161; Pintailed Nonpareil, 162; Gouldian Finch, 164; White-eared Grassfinch, 165; Masked Grassfinch, 165; Long-tailed Grassfinch, 166; Parson Finch, 166; Diamond or Spotted-sided Finch, 168; Painted Finch, 168; Rufous-tailed Grassfinch, 168; Fire-tailed Grassfinch, 170; Zebra Finch, 171; Bichen's Finch, 172; Ringed Finch, 173; Cherry Finch, 173; Indian Silver-bill, 173; African Silver-bill, 174; Ribbon Finch, 174; Red-headed Finch, 175.			
„ Japanese	111	Goldfinches	92		
BUNTINGS (<i>Emberizina</i>)	112—136	Greenfinch	137		
Grey-headed, 112; Yellow-browed, 113; Golden-breasted, 113; Red-headed, 114; Yellow-breasted, 114; Red-backed or Ruddy, 115; Masked, 115; Bonaparte's, 116; White-crowned or Pine, 116; Rock, 117; Striolated Rock, 118; Sahara or House, 118; Cape, 119; Crested Black, 119; Lark, 120; White-shouldered Lark, 121; White-throated Song Sparrow, 121; White-eyebrowed Song Sparrow, 121; Grey-headed Song Sparrow, 122; Chingolo Song Sparrow, 122; Nonpareil Bunting, 123; Indigo Bunting, 123; Lazuli Bunting, 124; Varied Nonpareil, 124; American Snow-bird, 125; Oregon Snow-bird, 125; Chipping Sparrow, 126; Vesper Sparrow or Bay-winged Bunting, 127; Sandwich Bunting, 127; Manimbe Seaside Sparrow, 127; Melodious Sparrow, 129; Fox Sparrow, 129; Red-eyed Ground-Finch, 129; Mexican Spotted Ground-Finch, 130; Black-throated Bunting, 130; Citron Finch, 130; Gay's Finch, 131; Orchard Finch, 131; Alaudine Finch, 132; Diuca Finch, 132; Pileated Finch, 132; Red-crested Finch, 133. Cardinals, Green, 133; Yellow-billed, 134; Red-headed or Dominican, 134; Red-crested, 136.		GROSBILLS (<i>Coccothraustina</i>)	136—148		
Cape Canary	104	Virginian Cardinal, 136; Venezuelan or Purple Cardinal, 137; Thick-billed Cardinal, 137; Chinese Greenfinch, 137; Black-tailed Hawfinch, 138; Japanese Hawfinch, 139; Black and Yellow Hawfinch, 139; Golden-bellied Grosbeak, 140; Rose-breasted Grosbeak, 140; Black-headed Grosbeak, 141; Northern Blue Grosbeak, 141; Lazuline, 142; Southern Blue Grosbeak, 142; Tropical Seed-Finch, 142; Thick-billed Seed-Finch, 143; Jacarini Finch, 143. <i>Spermophila</i> —White-throated Finch, 144; Half-white Finch, 144; Grey Grosbeak, 144; Plumbeous Finch, 144; Euler's Finch, 145; Lavender-backed Finch, 145; Fire-red Finch, 145; Reddish Finch, 146; Collared Finch, 146; Black-banded Finch, 146; Spectacled Finch, 146; Lineated Finch, 146; Bluish Finch, 147; Guttural Finch, 147; Ocellated or Black-headed Lined Finch, 147; Lined Finch, 148.		Hawfinches	138—140
Cardinals	133—137				
CAT BIRDS (<i>Galeoscoptes</i>)	27				
American, 27.					
Chaffinches	91—92				
DRONGOS (<i>Dicrura</i>)	53				
Large Racket-tailed, 53; Indian or Hair-crested, 53.					
FISCHES (<i>Fringillidae</i>)	91—112				
Typical <i>Finches</i> —Blue Chaffinch, 91; Madeiran Chaffinch, 91; Canarian Chaffinch, 92; Algerian Chaffinch, 92; Eastern Goldfinch, 92; American Siskin, 92; Yarell's Siskin, 93; Indian Siskin, 93; Arkansas Siskin, 94; Colombian Siskin, 94; Yellow-bellied Siskin, 94; Yellow-rumped Siskin, 95; Black Siskin, 95; Black-chinned Siskin,					

	PAGE		PAGE
HONEY-EATERS (<i>Meliphagida</i>) ...	64—70	SO-CALLED GROUND-THRUSHES (<i>Geocichla</i>)—	
Poe, Tui, or Parson-bird, 64; Lunulated or White-naped, 65; Strong-billed, 65; White-eared, 66; Yellow-tufted, 67; Yellow, 67; Lewin's, 68; Fuscous, 69; Garrulous, 69; Wattle, 69; Blue-faced, 70; Black-tailed, 70.		Orange-headed, 16; White-throated, 17	
MANNIKINS (<i>Mniina</i>) ...	176—185	ROCK-THRUSHES (<i>Monticola</i>)—Common, 18; Blue, 19.	
Quail Finch, 176; Sharp-tailed Finch, 177; Striated Finch, 177; Bengalee, 178; Common Spice-Finch, 178; Bar-breasted Finch, 178; Topela Finch, 178; Malayan Spice-bird, 178; Pectoral Finch, 178; Chestnut-breasted Finch, 179; Yellow-rumped Mannikin, 180; White-headed Mannikin, 180; Javan Maja-Finch, 180; Black-headed Mannikin, 182; Three-coloured Mannikin, 182; Java Sparrow, or Rice-bird, 183; Magpie Mannikin, 184; Two-coloured Mannikin, 184; Rufous-backed Mannikin, 184; Bronze Mannikin, 185; Bib Finch, 185.		WHISTLING-THRUSHES (<i>Myiophonus</i>)—Horsfield's 20.	
MAGPIE ROBINS (<i>Copsychus</i>) ...	21—22	MOCK-THRUSHES—Brown, 27.	
Dayal, 21; Seychellean, 22.		TIT-LIKE BIRDS (<i>Parida</i>) ...	28—33
MOCKING-BIRDS (<i>Mimina</i>) ...	26—27	ACCENTORINE TITS (<i>Liotrichina</i>)—Pekin Nightingale, 28; Silver-eared Mesia, 30; Blue-winged Siva, 32.	
Common, 26; Saturnine, 27.		TRUE TITMICE (<i>Parus</i>)—Azure, 33; Red-sided, 33.	
ORIOLES (<i>Oriolida</i>) ...	52—53	WAGTAILS (<i>Motacillida</i>) ...	34
Black-naped, 52; Sykes, 52.		Pied Grallina, 34.	
Saffron Finches ...	102—103	WARBLERS (<i>Sylviina</i>) ...	26
SHAMAS (<i>Cittocincla</i>) ...	22—24	Japanese Bush, 25.	
Indian, 22; Chestnut-bellied, 22.		WAXBILLS (<i>Estrildina</i>) ...	151—160
SHRIKES (<i>Laniida</i>) ...	57—59	Dufresne's Waxbill, 151; Masked Firefinch, 151; Vinaceous Firefinch, 151; Black-tailed Lavender Finch, 152; Common Lavender Finch, 152; Bar-breasted Firefinch, 152; Common African Firefinch, 153; Brown-headed Firefinch, 153; Common Amaduvade Waxbill, 153; Zebra or Gold-breasted Waxbill, 154; Orange-checked Waxbill, 155; Green Amaduvade, 155; Red-browed or Australian Waxbill, 155; St. Helena Waxbill, 156; Grey Waxbill, 156; Rosy-rumped or Sundevall's Waxbill, 156; Crimson-winged Waxbill, 157; Red-faced Waxbill, 157; Crimson-faced Waxbill, 157; Yellow-throated Waxbill, 158; Cordon Bleu or Crimson-eared Waxbill, 158; Blue-breasted Waxbill, 160; Violet-eared Waxbill, 160.	
Singing Finches ...	106—107	WEAVERS (<i>Ploceida</i>) ...	151—160
Siskins ...	93—97	See Waxbills.	
Song Sparrows ...	121—122	WEAVERS, TYPICAL (<i>Ploceina</i>) ...	197—205.
SPARROWS (<i>Petronia</i> and <i>Passer</i>) ...	98—102	Scaly-fronted, 197; Speckled-fronted, 197; White-fronted, 198; Blue-beaked, 198; Bright-spotted, 198; White-billed Buffalo, 199; Chestnut-backed, 199; Short-winged, 199; Masked, 200; Yellowish, 200; Olive, 200; Rufous-necked, 201; Black-headed, 201; Half-masked, 202; Black-fronted, 202; Eyebrowed, 203; Baya, 203; Black-throated, 204; Great-billed, 204; Bengal, 204; Manyah, 204; Madagascar, 205; Comoro, 205.	
SUGAR-BIRDS (<i>Cerebida</i>) ...	70—74	WEAVING FINCHES (<i>Pheniparina</i>) ...	148—150
Yellow-winged, 72; Purple, 73; Black-headed, 73; Blue, 73.		Black Seed, 148; Cuban, 148; Olive, 150; Little, 160; Dusky, 150.	
TANAGERS (<i>Tanagrida</i>) ...	74—91	WHITE-EYES (<i>Zosteroppida</i>) ...	61—63
All-green, 74; Yellow-fronted, 76; Black-necked, 76; Chestnut-fronted, 76; Gold-fronted, 76; Greenish, 76; Dwarf, 78; Violet, 78; Thick-billed, 78; Pectoral, 78; Black-bellied, 78; Lead-coloured, 79; Jamaica, 79; Red-bellied, 80; Blue-and-black, 80; Black-backed, 80; Paradise, 80; Superb, 80; Three-coloured, 81; Festive, 82; Spotted Emerald, 82; Yellow, 82; Black-cheeked, 83; Chestnut-backed, 83; Black-shouldered, 83; Lavender-and-black, 83; Yellow-bellied, 83; Blue-winged, 83; White-capped, 84; Silver-blue, 84; Blue-shouldered, 84; Sayaca, 84; Palm, 84; Archbishop, 85; Striated, 85; Scarlet, 85; Maroon, 86; Summer, 86; Red, 86; Black-and-red, 87; Louisiana, 87; Saira, 87; Black, 87; Little Black, 88; Crested, 88; Crowned, 88; Fasciated, 88; Bahama, 88; Great Saltator, 89; Allied Saltator, 89; Orange-billed, 89; Magpie, 90; Black-headed, 90; Fuliginous or Smoky, 90.		Grey-backed, 61; Indian, 61; Chinese, 62; Japanese, 63; Cape, 63; Yellow, 63.	
THRUSHES (<i>Turdida</i>) ...	9—21	WHYDAHs AND WHYDAH-LIKE WEAVERS (<i>Udiuina</i>) ...	186—196
TRUE THRUSHES (<i>Turdina</i>)—American Wood, 9; Migratory, 10; Dwarf, 10; Swainson's, 11; Tawny, 11; Falkland-Island, 11; Red-bellied, 12; Dusky, 12; White-bellied, 13; Sorry, 13; Gray's, 13.		WHYDAHs—Combasou, 186; Steel Finch, 186; Ultramarine Finch, 186; Resplendent Whydah, 187; Pin-tailed Whydah, 187; Shaft-tailed Whydah, 188; Paradise Whydah, 188; Long-tailed Whydah, 189; Red-collared Whydah, 189; White-winged Whydah, 190; Yellow-backed Whydah, 190; Red-shouldered Whydah, 191; Yellow-shouldered Whydah, 192.	
BLACKBIRDS OR OUZELS (<i>Merula</i>)—Grey-winged, 14; Yellow-footed, 15; Chinese, 15; Grey, 15; Grey-headed, 16.		WEAVERS—Yellow-shouldered, 193; Golden-backed, 193; Napoleon, 193; Crimson-crowned, 194; Black-vented, 195; Grenadice, 195; Orange, 195; Red-billed, 196; Red-headed, 196.	
		WOOD-SWALLOW (<i>Artamida</i>) ...	54—57
		White-eyebrowed, 54; Masked, 55; Dusky, 55; Ashy, 56.	

PREFACE.

THE object of the present book is to supply a want long felt by British students of foreign birds in captivity. Whereas our German friends have the excellent volumes written by the late Dr. Karl Russ, we have hitherto had to be content with a few sketchy handbooks in this country. Therefore, when the Editor of *The Feathered World* and *Canary and Cage-Bird Life* informed me that the first part of my less ambitious work* was almost out of print, and asked me to prepare, as soon as possible, a more up-to-date edition, I suggested that we might as well do the thing properly, and write a book which should be practically complete. This suggestion, I rejoice to say, was heartily approved of.

Dr. Russ, who published the great German work, "The Foreign Chamber-birds" (*Die Fremdländischen Stubenvögel*), was the Editor of the German "Feathered World"; therefore it is most fitting that the sister work in England should be published by the Editor of the English paper with the same title.

Aviculture, or the study of birds in captivity, probably had its origin in prehistoric times, for we find that all the more enlightened races of mankind (often wrongly called savages) capture and keep their native birds as pets. The Chinese are probably the most ancient existing nation of bird-lovers, and it is quite likely that they were aviculturists a great many centuries ago. Henry Oldys, in an able paper upon the "Cage-bird Traffic of the United States," says:—"The practice of keeping live birds in confinement is world-wide, and extends so far back in history that the time of its origin is unknown. It exists among the natives of tropical as well as temperate countries, was found in vogue on the islands of the Pacific when they were first discovered, and was habitual with the Peruvians under the Incas and the Aztecs under Montezuma. Caged birds were popular in classic Greece and Rome. The Alexandrian Parrakeet—a ring-necked Parrakeet of India—which is much fancied at the present day, is said to have been first brought to Europe by one of the generals of Alexander the Great. Before this living birds had been kept by the nations of Western

Asia, and the voices of Bulbuls and other attractive singers doubtless added to the charms of the hanging gardens of Babylon, while in China and Japan the art of domesticating wild birds has been practised for many centuries." It is tolerably certain that the ancient Hebrews were aviculturists, for "a cage of unclean birds" is mentioned in their writings, and we are well aware that Peacocks were brought over regularly to embellish Solomon's gardens.

In order to be able to treat birds correctly in captivity, it is necessary that one should be familiarised with the wild life, and therefore I have followed the excellent example set by Dr. Russ, and have done my best to get together field notes upon the majority of the species. In order to do this, I was obliged to add considerably to my already fairly comprehensive library, and when a work upon birds runs into many volumes at one or two guineas a volume, it will be understood that my work is to a great extent a labour of love.

One objection raised to my smaller work, "Foreign Bird-keeping," was that I did not give sufficient information respecting the feeding of birds. I thought I had done so myself, but, at any rate, I do not think the same fault can be found with the present work. Nevertheless, do what one will, one can never expect to escape scatheless from those reviewers who consider it their chief duty to discover the blemishes and pass over the good points in the book under their notice. There is one good thing, and that is that even an ungenerous critique brings a work into notice, and the public judges it on its own merits.

I have purposely omitted a few birds which are not in the least likely to come to hand nowadays. They are either strictly preserved, are becoming extinct, or are hardly ever to be met with in the hands of native dealers, and their standing as cage-birds rests upon a single chance specimen captured and brought home by some traveller. I do not consider it my duty to follow the example of the late Dr. Russ and include accounts of dozens of birds, on the chance that they may be eventually imported; nor do I agree with him that a bird is unworthy of notice because it is of sombre colours and has no song; it may nevertheless be a most interesting species to breed, one perhaps of

* The articles under the title of "Foreign Bird-keeping" were published in March, 1893, and issued in book form in 1899 and 1900. —ED.

which the life-history is quite unknown to science. We should study birds, not merely keep them as if they were mere luxuries for the gratification of the senses of sight and sound.

In conclusion, I can only hope that this work will be useful; it is the result of many months' steady work, and embodies not only my own experience in the care of more than two hundred species of foreign birds, but that of many other strenuous workers. In order to do justice to it, I have had to refer constantly to nearly every book in my ornithological library, and this alone means the collation of interesting facts which cannot be got hastily together.

A. G. BUTLER.

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Foreign Birds for Cage and Aviary.

CHAPTER I.

Aviaries and Management.

AS regards the housing of one's birds, I still hold, as before, that for many reasons aviaries are preferable to cages. In them birds lead a more natural existence, for they have space in which to use their wings, to make love, marry, and rear families in comfort, to feed and bathe unmolested, or, if disturbed by their fellows, to dispute without serious danger. These changes of occupation are undoubtedly beneficial not only in respect of the active use of all the bird's organism, but in giving a cheerful tone to its mind; whereas a solitary caged bird leads a monotonous life at best, all its enjoyments being self-centred and unnatural.

For breeding purposes the best type of aviary is one formed upon the general plan of some of those in the Zoological Gardens of Regent's Park; but there should be plenty of trees or shrubs in it, and, if possible, long and short grass. High up in corners, or on platforms raised upon stakes which may be covered over with ivy, hop, or virginian creeper, bundles of rough brushwood should be placed, with nesting receptacles thrust here and there among the twigs. The aviary should have both summer and winter quarters of equal dimensions, though in the case of many hardy species this is not indispensable. The winter quarters should be formed in an artificially warmed brick building, well lighted and ventilated, and should communicate by a sliding wooden door with the outdoor summer aviary; the latter ought by rights to face south, the part nearest the building being roofed in as a shelter in rough weather, and both this and the building containing the winter portion should be entered by doors opening from a glazed passage running along the eastern side. The open aviary will thus be protected against easterly winds, whilst any birds which may by chance escape into the covered passage can be captured and restored to their home. If, however, it is important to economise space, the entrance to the indoor aviary must have two doors, the inner one wired, with a small lobby between the two, so that the outer door may be closed before the inner one is opened; by this means not only are the inmates prevented from escaping, but if it is desired to capture them for any reason they can be driven into the small enclosure between the two doors and easily secured by hand.

The wired part of an aviary should be formed of half-inch galvanised iron netting, and painted outside with Brunswick black, or some innocuous dark enamel. The entire aviary should stand at least a foot above the outside level on a foundation of concrete, having glazed

tilled sides in order to prevent the ingress of mice and other noxious vermin.

The furnishing of an aviary is to some extent a matter of taste, but for drinking and bathing purposes there is nothing better than a plain fountain kept always playing in a shallow glass basin, and running over into a larger bowl communicating with a properly constructed drain; the water is thus always fresh, and the purity of the surrounding air is maintained. As, however, this arrangement of running water is, as I know to my cost, very expensive, a tolerably good substitute may be provided by forming a shallow pan of cement in the floor of the aviary, with a plug and pipe, to carry off foul water, let into the bottom as in lavatory basins; this type of combined drinking and bathing convenience is, in a more or less modified form, adopted by many aviarists.

In aviaries of moderate size, in which there is only space for a border and a narrow path, plants in pots are frequently introduced, but a border of earth bounded by a smooth, and therefore easily cleaned, cemented wall is far better; this should be planted with box, cypress, broom, firs, and pines. Against the wall of the building, over the door connecting the double aviary, various receptacles to be used for nesting purposes should be fastened.

In the absence of the wherewithal to enable the amateur to erect such a structure as I have described, he may utilise a room, or even part of one, as an aviary, covering the floor with zinc, to keep the mice out, nailing up pea-sticks against the walls for perches, and partly concealing his nest-boxes amongst them. My own aviaries are a kind of compromise between the two types above described.

Cages must necessarily vary much, according to their occupants. Those usually offered for sale in bird shops are not always suitable. In no case should a cage be so constructed, or, at any rate, so placed, that a direct draught can blow through it. As a general rule, box-cages, with one or more small air-holes at the back near the roof, are most satisfactory. They are warm, and, when not kept in a close room, are healthy; and their inmates grow tamer in a shorter time than in any other form of cage, simply from the fact that they are constantly compelled to face their owners. As a remarkable instance of this fact, I may mention that a freshly caught Song Thrush, placed in a cage of this pattern took yolk of egg from my fingers three days afterwards; but it is only perhaps fair to note that this and other birds which became tame nearly as soon under the same conditions were caught during a very severe winter, and therefore were probably in a more than usually subdued frame of mind when netted. As a general rule, Blackbirds and Thrushes do not become quite steady until after their first moult in captivity,

and the same is true of those bred in large garden aviaries. Cages made wholly of metal or wicker are suitable enough if kept in a warm place out of all draughts, or hanging on a south wall out of doors; but, otherwise, a cage having bars only in front is safer. The trays of all cages ought to be made of metal; these are cleaner, less likely to harbour insects, and do not get so easily jammed as wooden trays.

If it is desired to breed birds in cages, the latter must be considerably larger than otherwise; moreover, whereas many pairs may be permitted to nest in a large aviary, a single pair only should be enclosed in each breeding-cage. The smallest cages suitable for breeding foreign birds should be of the following measurements: For small Parakeets, Weavers, and the larger Finches the cage should be 3ft. to 4ft. long, 2ft. to 3ft. high, 5ft. to 6ft. deep; for Cardinals, 5ft. to 6ft. long, 3ft. to 5ft. high, 8ft. to 9ft. deep; for Waxbills, Mannikins, and other small ornamental Finches, 1½ft. long, 1½ft. high, 1ft. deep. Large Parrots, Cockatoos, and Parakeets, and all kinds of soft-billed birds should be bred in spacious aviaries. Nest-boxes suitable to the wants of the birds, and partly concealed by brushwood, should be fixed near the roof on the back wall of all breeding cages.

After trying many forms of nesting receptacles, I have found that nearly all the smaller Finches are best pleased with a box, in form like a full-sized cigar-box, but larger. This box is hung up with its long axis vertical, and with the upper third of the anterior face left open. The greater part of the box should be filled up with hay and moss, and other materials supplied to the birds in an open cage or net. The same box, and of the same size, is suitable for many other foreign Finches and Bluebirds. Next to the cigar-box type comes the German Canary cage, deprived of its accessories, supplied with a sound wooden floor, two hooks at the back to suspend it by, and one or more bars removed from the front. In this cage the Grey Singing Finch, Zebra Finches, Diamond Finches, and probably many others will build. Thirdly, I have found a little pasteboard travelling cage, with metal or wooden corners and a sliding door, very useful. The sliding-door is opened about two inches, and fixed there with tacks, and light enters the box through the regular perforated air-holes. Some years since I observed in one of Mr. Seth Smith's aviaries one or two old straw hats tacked against a wall with a hole cut near the top of the oval of the crown; in these my friend was most successful in breeding Parrot-Finches, which appeared to prefer them to all other receptacles in which to build their nests. In 1905 I tried the same as homes for Gouldian Finches, and found that they accepted them with pleasure; I was thus for the first time successful in breeding these beautiful birds, which I had many times previously failed with. I do not doubt that most of the Grass Finches, or, at any rate, all those which prefer to nest in thick cover, would welcome our cast-off head-gear as nursing-homes for their young. For the larger Parrots, small barrels placed high up on a small platform seem to be readily accepted, the entrance being made at one end through a large hole; for the larger Parakeets, use either log-nests or boxes so constructed that platforms converge from the four inside walls to near the centre, in which a handful of sawdust is placed, the entrance being placed near the top at one end (see "Hints on Cage-Birds," p. 39); lastly, for the smaller Parakeets and Lovebirds coconut husks may be provided.

The best sand with which to cover the floor of an aviary or the tray of a cage is clean sea-sand, just as

received from the shore; it is wholly composed of grit, and the salt which it contains is decidedly beneficial to birds; shell-sand, on the other hand, is dangerous, as the sharp fragments of shell when swallowed are liable to set up inflammation, and have even been known to cut through the gizzard, thus causing death. Crushed old mortar or egg-shells may be scattered over the sand, and cuttle-fish bone should always be given, otherwise moulting will be retarded and nesting hens will produce soft or shell-less eggs.

Any of the better kinds of insectivorous foods containing egg and ants' eggs will be found beneficial to many of the Finches and will be used for feeding the young by most of them, but many of the Grassfinches appear to bring up their families upon seed, green fly (plant lice), or such small insects as they may be able to capture; the Mannikins, which are to all intents and purposes dull-coloured Grassfinches, have been known to use gentles for rearing their young, of course, in addition to partly-digested seed. Fruit is necessary for most Parrots, as well as the majority of soft-food eaters. A mealworm or caterpillar, once or twice every day, should be given to all soft-billed birds to Cardinals, Weavers, Buntings, and the few Waxbills which will eat them; also insects of various kinds, when procurable, and spiders; and for Warblers, Thrushes, and Starlings, small earth-worms mixed with garden mould in a saucer. Lastly, during the breeding season some form of egg-bread, sweet biscuit, or Madeira cake will be found useful.

If possible, it is important that only birds in good health should be purchased, and therefore it is best to obtain them from a reliable importer. If you have any doubt as to the perfect health of a bird, do not turn it loose in any aviary until that doubt is set at rest; for enteritis, asthma, and many other diseases to which freshly imported or ill-conditioned birds are liable are infectious, and if introduced into a community may cause serious losses.

When, in spite of all care and attention, a bird falls ill there is seldom much chance of completely restoring it to health, and therefore I shall not waste space in repeating the innumerable remedies usually recommended as almost infallible cures for every ache and pain to which the feathered family is subject. At the same time, asthma and egg-binding, when taken in time, are usually easy to cure. For the former a few drops of glycerine stirred into the drinking-water every day for a fortnight is the best remedy; but be careful not to overdo the dose, or the result, according to the late Mr. Abrahams, is likely to prove fatal: the dose for Finches is eight drops to a wineglassful of water; for Thrushes or birds of that general size, ten drops; for the larger Parrots, which do not drink more than once or twice a day, a teaspoonful in the ordinary parrot-tin; gum arabic dissolved in the water is a very safe remedy, but not so effectual; many bird-keepers give both combined. For simple colds and sneezing fits a little diluted glyco-thymoline used as a nasal douche is excellent. Before using these remedies it is always well to give a mild purgative, five grains of Epsom salts for one day in the drinking-water for Finches, an increased dose or a little tasteless castor oil for the larger birds; after the cure also it is best to strengthen the patient by giving a little iron in some form or other. For egg-binding apply a little sweet oil with a feather to the vent, and put one drop into the beak, then hold the bird over the steam from a jug of hot water for a quarter of an hour, wrap it up in warm flannel, and place it in a covered cage near the fire.

In only one instance out of many have I succeeded in curing a bird of inflammation of the bowels by

strictly following the method usually recommended, and even then the patient was left so weak that, although for a day or two it even recovered its song, it almost immediately caught cold and died of pneumonia. Even the heroic method of treatment, though rarely successful, is occasionally more satisfactory; on several occasions I have added a year or more to the life of a bird by reducing its temperature with a syringe, and once lengthened the life of an Indigo Finch for two years by picking it up when in a dying condition in the corner of my bird-room and turning it out into the winter frosts of my outside aviary; at the same time I do not advocate this treatment—it is kill or cure, and usually the former.

Scurvy, a nasty and dangerous disease, I once cured in the case of a Persian Bulbul by increasing the amount of fruit and green-meat in its daily food; probably attention to diet might arrest this disease in other birds. Imperfect moulting generally arises from want of nourishing food and cuttlefish bone, and to chills contracted through insufficient exercise or draught. Wounds should be anointed with vaseline. Broken legs, unless the fracture is a clean one, are less likely to inflame if completely severed with a pair of sharp-pointed scissors; but a simple fracture may be bound up in splints made by splitting up a goose-quill.

In order to prevent deaths resulting from quarrels, it is necessary to avoid mixing up birds of unequal strength and uncertain tempers. An aviary for Waxbills and Mannikins may also contain Bichenos, or Zebra Finches, also Gouldian Finches, a Combasson, and several Grey Singing Finches, with many other little birds of about the same size, but not Cutthroats or any larger birds. The smaller Parrakeets may sometimes be kept together, but not with other birds. Blue Robins and Pekin Nightingales, though very amiable so far as I have found (but not so in the experience of some bird-keepers, who complain that they seize tiny birds by wing or leg and swing them about to the danger of both life and limb), should not be associated together or with any birds which are breeding; for, like our English Chaffinch and Brambling, they are inveterate robbers of eggs. As a rule, it is better not to keep British and foreign birds in the same aviary; but Siskins, Goldfinches, Linnets, Bullfinches, and Reed-Buntings may safely be associated with the more sturdy of the small foreign Finches, as also most of the British Chats and Warblers. Of the larger British birds the Song Thrush and Redwing are the safest, and I have kept them for two years in succession with Blue Robins. Cardinals of any species, Parrots, and the larger Parrakeets are best kept separate, and for breeding purposes one pair only can be safely put into an aviary.

In addition to the penny nest-bags sold to Canary breeders, foreign birds should be supplied with plenty of hay, coarse willow-fibre, roots, wood-moss, and soft feathers; the moss can be obtained in any damp wood or can be purchased from a florist, and the willow-fibre is generally sold at fancy repositories for filling fire-grates.

CHAPTER II.

THRUSHES (*Turdida*).

This family of birds includes not only the typical Thrushes (*Turdina*) which are represented by our Mistle Thrush, Song Thrush, Redwing, Fieldfare, Blackbird, Ring Ouzel, the Chats, Robins, and Nightingales, but also the Warblers (*Sylvina*), and Hedge Accentors (*Accentorina*). It thus covers most of the best

European songsters, and some of the most charming of imported cagebirds.

The true Thrushes should be fed upon a good insectivorous food mixed with stale household bread-crumbs and slightly damped, also small fruits, insects of various kinds in all stages, centipedes, spiders and worms; in feeding Nightingales and the more delicate Warblers the bread-crumbs should be omitted, a little powdered biscuit being preferable, unless already contained in the food; and before going any further I would insist emphatically upon the necessity for both ants' eggs and yolk of egg in all insectivorous mixtures until an ingredient as nutritious as egg has been discovered as a substitute for it; even then, unless the birds themselves showed a preference for this hitherto undiscovered article, I would recommend owners of birds to consider their captives' taste in this matter, for we know that yolk of egg is a favourite food of many birds both British and foreign, and that not a few seek the raw material in the nests of other birds, thus proving it to be a natural food. Many of the Warblers and other small Thrushes seem uncertain in their liking for fruit, but most (if not all) insectivorous birds occasionally swallow seed whole; I have not seen a Nightingale or a Warbler do this, that I can remember, but true Thrushes, Robins, Chats, and especially Accentors eat seed freely at times.

The typical Thrushes appear to have been more freely imported into Germany than into England, possibly because song, apart from plumage, has in the past appealed more to Teutons than Britons; there is no doubt that all who take pleasure in our British Thrushes should find those of the New World and the Far East equally interesting. As I have pointed out elsewhere, the males of these birds are larger than the females, with narrower skulls and longer and more slender bills.

True Thrushes (*Turdina*).

AMERICAN WOOD THRUSH (*Turdus mustelinus*.)

Upper surface grey-yellowish brown to cinnamon, middle of head more ruddy; lores white; sides of head streaked with white; rump olive-greenish; flights and wing-coverts brown with dull rust-yellow outer margins; under wing-coverts white; tail feathers greyish brown with olive-greenish wash and narrow dull yellow outer margins; body below white marked with triangular or rounded blackish spots; chin pure white; sides of throat towards chin with a dark spotted moustachial stripe; breast washed with dull yellow; abdomen and under tail-coverts pure white; bill dark brown, the base and inner margin of under mandible yellowish; eyes brown; feet yellow.

Female noticeably smaller than male, according to Dr. Baird, yellower on underparts. Inhabits North America.

In its wild life this Thrush is said to prefer wooded lowlands in the vicinity of water, and, although somewhat shy of human habitations, it has been met with not far from buildings, in gardens and groves. It is a migratory bird, appearing in the States from the end of April to the middle of May, the males probably arriving first. The return migration is said to take place in September. It is much confined to dense scrub, its presence therein being indicated by its resounding flute-like cries *co-lie* or *halloh*, *twiu-ku-ku*, and the sharp *tack* or *tuck-tuck-tuck-tuck*, which is probably an alarm-call. It sings high up in the top or on a projecting branch of a tree, and its performance has received the highest praise. It is said to be characterised by fulness, variety, and purity of its

tones, variability of phrases, and solemnity of sound. The song is continued almost without intermission from break of day until late in the evening, the only brief interval for rest being about midday. Nests may be found from the beginning of June, generally placed low down upon a densely-twigged stock or overhanging branch of an old tree, also in a dense thorn-bush, or, rarely, on the stump of a tree. The nest is like that of the Migratory Thrush, but the cavity is sometimes smoothed over with black earth and lined with twigs and rootlets. The eggs and period of incubation are described as similar to those of its allies.

When first caught, this Wood Thrush is said to be very wild, and some examples remain so for a considerable time, while others soon become tame and confiding. It sings in captivity from the end of February well into July, but it must be noted that in a cage many cocks will only sing very little, and some not at all; particularly in a crowded cage will they not sing. They must be always caged alone, and even then many cocks only utter their call *e-o-lie, e-o-lie*. This being the case, it is hardly surprising that this Thrush has not become a favourite cage-bird even in Germany, but as an inhabitant for a large garden aviary it should be charming.

MIGRATORY THRUSH (*Turdus migratorius*).

Above olive-grey, top and sides of the head black, chin and throat white streaked with black; eyelids, and a spot above the eye anteriorly, white; underparts and inside of the wings, yellowish chestnut-brown; the under tail-coverts and thighs, white; the feathers, leaden-greyish at base; wings and tail, dark brown, more or less edged with ashy; outermost tail-feathers white-tipped; bill yellow; the culmen and tip dusky; base yellow; eyes brown; feet blackish.

Female altogether paler, top and sides of head brown, throat whiter. The young bird is said to be barred above with blackish, the throat white, bounded by a brown stripe running downward from the angle of the bill, rest of under-surface rust yellow, with blackish bars; bill and feet blackish-brown. Inhabits North America and southward to Ecuador.

According to J. G. Cooper, the nest of this species "is built at various heights on trees, and sometimes, as if relying fully on the nobler traits of humanity, in a shed, stable, or even in a sawmill close to the constantly working and noisy machinery." He says that he has also found one in the cleft of a split tree which had been broken down by the wind. "Nuttall relates instances of their building near a blacksmith's anvil; on the stern timbers of a vessel that was being built at Portsmouth (N.H.); on a harrow hung up in a cart-shed, where three men were at work, and where they took refuge after the destruction of their first nest."

"The eggs are four or five, dark bluish green, and unspotted. The nest is composed outside of roots, shavings, etc., then a layer of leaves, moss, and grass, cemented by mud, inside of which is a lining of soft, dry grass."

"The Robin's song* is loud and sweet, but not much varied. Though usually uttered in spring, it occasionally is heard during other seasons, especially in fine weather, when the musician, having fed heartily in the garden or field, mounts to the top of a tree, and returns thanks for human hospitality in the most pleasing melody."

"Their food consists chiefly of insects, especially worms" (a curious statement when one considers that these are not insects!), "for which they hop over grassy fields in the spring, watching and listening for the

gnawing grub or earthworm driven to the surface by rain, occasionally seizing one with a quick motion of the head, swallowing it whole, or picking it to pieces. They also feed much on berries, especially during winter, when they eat those of the Madrona (*Arbutus*) and even the bitter fruit of the dogwood (*Cornus*).

"Kept in cages they become very familiar, and learn to imitate various tunes and noises. They live sometimes for many years in captivity, and have been made so domestic as to be allowed the free range of the house and surrounding grounds." (Geological Survey of California: "Ornithology," Vol. I., p. 9, 1870.)

The song has been likened to that of the European Blackbird, but Dr. Russ says this is only true so far as the mere tone is concerned; that both have the same splendid whistle, only the song of the Blackbird is more sustained and varied; that of the Migratory Thrush shorter and more monotonous.

DWARF THRUSH (*Turdus nanus*).

Upper surface light olive-brown, becoming redder on upper tail-coverts and tail, wings also slightly washed with reddish; under-surface white, the breast and sometimes throat slightly buffish; sides of throat and breast spotted with more or less triangular dusky spots, lateral spots at back of breast more rounded; sides washed with pearl-grey; bill brown, the base of lower mandible yellowish flesh-coloured; eyes brown; feet pale brown. Inhabits North America.

Very rarely imported into the German bird market, but possibly not into that of Great Britain. Mr. Cooper gives the following account of the wild life:—

"I saw but few of this species in the Colorado valley, where they seem to remain only for the winter, as I observed none after April 1. Most of them winter in the same parts of the State in which they spend the summer, chiefly south of San Francisco. They are shy and timid, preferring the dark, shady thickets, and rarely venturing far from them, except in the twilight, their large eyes being suited for seeing in dark places. They feed chiefly on the ground, running rapidly, and searching for insects among the leaves and herbage, but not scratching for them. Probably, also, they feed on berries, like others of the family."

"About April 25th they begin to sing near San Diego, the song consisting of a few ringing notes. . . . Their usual note of alarm is a single chirp, sometimes loud and ringing, repeated and answered by others for a long distance."

"At Santa Cruz, on the 1st of June, I found several of their nests, all built in thickets under the shade of cottonwood trees, each about 5ft. above the ground, and containing eggs in various stages of hatching, from two to four in number, the smaller number probably laid after the destruction of a first set. The nests were built of dry leaves, root-fibres, grass and bark, without mud, lined with decayed leaves; measuring outside 4in. each way, inside 2.50 wide and 0.20 deep. The eggs measured 0.90 by 0.70, and were pale bluish green, speckled with cinnamon-brown, chiefly at the larger end."

"In 1866, at Santa Cruz, I found nests with eggs about May 20th, one on a horizontal branch not more than a foot from the ground; another on an alder tree 15ft. up. After raising their young they all left the vicinity of the town, probably for the moister mountains, where food was more plenty at the end of the dry season"—T.c., pp. 4, 5.

Dr. Russ regards this as a mere varietal form of *Pallas' Thrush*. He says that to his knowledge E. von Schlechtendal once possessed a specimen belonging to this form, and that in the course of about twenty years he has only seen single examples in the possession of

* This Thrush is known in the United States as the American Robin.

the dealer Schöbel, of Berlin, at the Berlin Aquarium, in the Hamburg and the Berlin Zoological Gardens. It does not appear in the ninth edition of our Zoological Society's list.

SWAINSON'S THRUSH (*Turdus swainsoni*).

Upper surface olive-green; orbital region, cheeks, sides of head, throat, and breast rusty yellowish; sides of neck and upper breast with dusky roundish spots; sides of body less spotted, and washed with brownish; rest of under surface white; bill dark brown, yellowish at base; eyes brown; feet yellowish grey. Habitat, North America.

Mr. Cooper says of this species, which he calls the "Olive Thrush":—"Formerly supposed to be confined to Eastern North America, but of late years found farther and farther to the west. This Thrush breeds in the far north, more abundantly about Slave Lake, the Lower Mackenzie, and the Upper Yukon Rivers. Like its congeners, it is an admirable singer, enlivening the woods with its melody. The nest is placed on a low tree or bush, and the eggs are blue, with numerous reddish spots"—T.e., p. 7.

According to Ridgway, the song resembles that of the American Wood Thrush, but is not so loud, yet higher and silvery in sound.

Dr. Russ quotes as follows from Nehrling:—"A confiding pair, which I kept in a spacious aviary, chased one another playfully for an hour at a time whilst they uttered their long-drawn melodious call-note. The hunted one hopped on the ground, stooped and kept her wings in fluttering vibration; the other stayed on the perch, behaving in the same way while it eagerly called"; from which Dr. Russ concludes that both were females, yet this seems not to have been the case, since the account continues: "Only when one keeps it by itself in a roomy cage and carefully tends it does Swainson's Thrush sing fully and beautifully. In the course of years I have only had two which have sung out thus. One notices one thing about the song—that it is not suited to a small room; resounding, full of variety, it sounds extremely charming, and one can only properly judge of and appreciate it when one hears it in the forest."

Dr. Russ observes: "With us it comes only singly from time to time in the bird market, yet it has appeared several times at the great bird shows in Berlin; more rarely it has occurred in the Zoological Gardens. The Berlin Aquarium formerly had it several times. Since the years 1878-79 it has only been very sparsely imported by the businesses of Reiche and Ruhe. The price varied considerably—from 8 marks (shillings), 15 marks, up to 30 marks per head."

Dr. Russ also quotes the Grey-cheeked or Alieia's Thrush (*Turdus alicia*) as having been far more freely imported than the preceding; but he considers it would save trouble to consider them together. He says that, according to Baird, it is distinguished by its deeper and purer green upper surface, clearly ash-grey sides of head, and white instead of yellow orbital rings; and, according to Nehrling also, by its longer and more slender bill, longer wings, and greater size.

Neither of these Thrushes is mentioned in the ninth edition of the Zoological Society's list, which is fairly good evidence of their rarity in the English bird market.

TAWNY THRUSH (*Turdus fuscescens*).

Entire upper surface rusty reddish-brown; top of head and tail faintly tinted with orange; loreal streak white; ear-coverts ash-grey; flights and tail-feathers brown, edged with rust-reddish on the outer webs; flights below white, washed with rust-reddish at the

base; under wing-coverts dull rust-red; throat and upper breast pale brownish yellow, the latter marked with small triangular dark brownish spots; lower breast feebly spotted with grey; rest of underparts white, with the sides spotted with smoky olive-brown; upper mandible of bill brown; lower mandible clear yellowish grey; eyes brown; feet yellowish grey. Female slightly smaller than male, otherwise very similar. Habitat, North America. This is a widely-distributed species, but a shy bird inhabiting dense woods. When met with it is generally singly or in pairs, and even in the migratory season only in small flocks. It is common in the woods of Wisconsin and most numerous during the migratory season in Illinois. It appears in the Northern States scarcely before the middle of May, and disappears again in September. Like all the other Thrushes, its food consists of insects and worms, with the various berries which are to be met with in the American woods, especially those of the magnolia and, later, of various hollies. In the middle States many of these Thrushes remain throughout the winter, notably in the woods of Florida, but most of them emigrate to Cuba, Panama, Guatemala, and even to South America. The nest is built at the beginning of June, always near water of some kind, close to the ground among young shoots or in a dense thorn-bush, well concealed, and so placed that it is sheltered on one side. On a layer of dry foliage it is constructed of small twigs, thin sprays of hemlock, plant stalks, straws, fragments of vine-bark and bast intermixed with moss, and the cup is lined with bents, bast, and long hairs of beasts, but with no admixture of mud or rotten wood. It is a large structure, but not very neat or artistic. The laying consists of from four to five uniformly clear greenish-blue or emerald green eggs, very rarely spotted.

The song of this Thrush is most highly praised; indeed, Russ says: "Amongst songsters more highly valued than most other foreign Thrushes." Nuttall syllables the song thus: "*rihu, vihu, wich, wich, wichu, wichu, wilile, wilile, wielill, wilillill*," and says that one must be careful not to conclude that there is any kind of monotony in this stanza. At times it is said to utter a mewling or bleating cry. Its call-note is *jihu*, and sharply *juit, juit*. According to Nehrling, the cry of warning is a resounding *tschiup* and a penetrating *zap*, the call-note *woit*.

This bird was first brought alive to Germany in 1873, when the dealer A. Schöbel, of Berlin, imported it, and, after that, C. Reiche, of Alfeld, introduced it into the trade on several occasions in the course of years, but always singly; but it appears not to have found its way into the Zoological Gardens of London, Amsterdam, or Berlin, and naturally no opportunity has been given to attempt to breed it in captivity.

FALKLAND-ISLAND THRUSH (*Turdus falklandicus*).

Head blackish, remainder of upper surface more olivaceous brown; rump and upper tail-coverts grey-brown; primaries brownish black, the outer webs with narrow paler borders; wing-coverts and secondaries olivaceous brown; all the flights below ash-grey; under wing-coverts pale brownish rust-coloured; throat whitish, with dusky longitudinal streaks; remainder of under surface clear rust-brownish, with the centre of abdomen and vent brighter; under tail-coverts brownish, with whitish shaft-streaks; bill yellowish horn-grey; eyes dark brown; feet yellowish grey. The female is similar, but slightly duller in colouring. The young has the underparts of a rusty-yellowish fawn-colour and fawn with darker spots. Inhabits southern South America.

This rarely-imported Thrush is said to be tolerably

abundant at Valparaíso, and also further in the interior in small thickets and copses. C. L. Landbeck says of it:—"In the Cordillera this Thrush does not extend higher than the wooded region; it lives in woods and shrubberies, by preference where it can get plenty of orchard-fruits, which in summer form its chief article of food, whilst at the same time it also eats insects and, especially in winter, eagerly seeks for worms. As a very lively bird it has in its bearing a great resemblance to our European Blackbird. At the pairing-season it sings zealously quite early in the morning and until it is quite dark in the evening. The song is variable, entirely differing in individual birds, tolerably pleasing, and it might hold a middle position between those of its European relative the Song Thrush and Blackbird, yet it is inferior to each of these European songsters, inasmuch as it is neither so full and powerful as the Blackbird's song nor so much modulated as the song of the Song-thrush. The call-note is a protracted *gróog* (probably in English *grerery* or *grergr*). The song may be rendered somewhat in the following words:—*tiwi, toyo, gróhg, hoyeh, titich, djohi, ttoi, djettit, jo, djettit, zih, tröh, tiwih, jagett, jagett, hoyeh, hoyeh, hodich, jatie*, etc. As, however, there is no better singing Thrush here, it is so beloved by the Chilians that they keep it in cages in thousands. It is the pet bird of the poor, as they can easily obtain it from the nest and rear it without trouble. This Thrush, although it nests in numbers in the vicinity of human dwellings, moves about in gardens, and is rarely afraid of men, nevertheless rarely becomes tame in captivity, but always remains shy and nervous. Its movements are quick and vigorous. The nest bears the closest resemblance to that of the European Blackbird, and even the eggs resemble those of this species. At least twice in summer it lays five to six eggs. The nest is usually situated in the gardens in bushes and on all kinds of fruit-trees, by preference in thick rose-hedges and orange-trees. It does much mischief to the fruit, particularly to the sweet cherries, figs, and the like."

Although said to be so common a cage-bird in Chili, Dr. Russ speaks of it as one of the rarest species brought home alive. Mr. L. Ruhe, of Alfeld, imported a consignment in 1889, one of which Dr. Russ secured. It has been exhibited at the Berlin exhibition of the "Ornis" Society, has once appeared at our Zoological Gardens, and also at those of Hamburg and Berlin.

RED-BELLIED THRUSH (*Turdus rufiventris*).

Upper surface olive-grey, head greyer; throat reddish white, streaked with dark brown as far as the chest; upper chest washed with greyish olive, but the rest of under surface deep rust-red, under wing-coverts paler red; upper mandible dark horn-grey ("brownish-yellow" according to Selater and Hudson), the tip greyish horn-yellow, under mandible clearer; eyes brown; feet brownish horn-grey. Female much more fawn coloured, greyer on back and under surface. Young plumage: Crown with every feather pale edged; feathers of wing-coverts with rust-red shaft-strips and tips; chin and front of throat pale yellow, spotted with pale brown. Habitat, South-east Brazil, Paraguay, Uruguay, and La Plata.

According to Hudson, this is a noisy, quarrelsome bird: "It inhabits forests, runs on the ground in search of food, and when approached darts away with loud chuckling notes, flying close to the ground." These birds are also often seen pursuing each other through the trees with loud harsh screams. The song has a faint resemblance to that of the English Song Thrush, being composed of a variety of notes uttered in the same disconnected manner, with frequent pauses; but it is, both in sweetness and strength, inferior to that of the English

bird. As a rule, this Thrush sings concealed in a thick bush or tree.

"The nest is deep, well made, plastered inside with mud, and concealed in the centre of a large bush or low tree. The eggs are four, pale blue in colour, and thickly spotted with brown." (Arg. Rep., 1, p. 3).

According to Dr. Russ, this is also one of the rarest Thrushes in the bird market; it has, however, been received by Miss Hagenbeck, Mr. Mieth, and Mr. Maageldorf in Germany, and has appeared in our Zoological Gardens.*

DUSKY THRUSH (*Turdus leucomelas*).

Upper surface olive-grey, with a wash of brown on head and neck; throat white, more or less streaked with brown, a clear white neck-patch; middle of abdomen and under tail-coverts white; remainder of under surface pale grey; under wing-coverts and inner margins of wing-feathers fulvous; bill yellow, upper mandible somewhat brownish; eyes brown; feet horn-grey ("hazel," according to Hudson). The female is rather smaller, duller in all her colours; throat pale yellow, with paler streaks and no white neck-patch; middle of abdomen and vent yellowish. Young only distinguishable by its paler colouring, the absence of the white neck-patch, as well as by the darker brown bill and darker feet. Habitat, Eastern South America, from Cayenne to Buenos Ayres.

According to Hudson, this "is quite common in the woods along the Plata River. It is a shy forest bird, a fruit and insect eater, abrupt in its motions, runs rapidly on the ground with beak elevated, and at intervals pauses and shakes its tail, pugnacious in temper, strong on the wing, its flight not being over the trees, but masked by their shadows. It can always be easily distinguished, even at a distance, from other species by its peculiar short, metallic chirp—a melodious sound indicating alarm or curiosity, and uttered before flight—in contrast to the harsh screams and chuckling notes of other Thrushes in this district.

"Whether it is a fine singer or not within the Tropics I am unable to say, its vocal powers having received no attention from the naturalists who have observed it. With us in the temperate climate of Buenos Ayres, where it commences to sing in September, it has the finest song of any bird I know, excepting only *Mimus triurus*.† Like the English Song Thrush, but unlike its near neighbours the Red-bellied Thrush and the Magellanic Thrush, it perches on the summit of a tree to sing. Its song is, however, unlike that of the English bird, which is so fragmentary and, as Mr. Barrows describes it, made up of 'vocal attitudes and poses.' The two birds differ also in voice as much as in manner. The strains of the Dusky Thrush are poured forth in a continuous stream, with all the hurry and freedom of the Skylark's song; but though so rapidly uttered, every note is distinct and clear, and the voice singularly sweet and far-reaching. At intervals in the song there recurs a two-syllabled note twice repeated, unlike in sound any other bird-music I have heard, for it is purely metallic, and its joyous bell-like 'te-ling, te-ling,' always comes like a delightful surprise to the listener, being in strange contrast with the prevailing tone.

"The song is altogether a very fine one, its peculiar charm being that it seems to combine two opposite

* Dr. Russ enumerated the White-throated Thrush (*T. albicollis*) as a well-known Brazilian cage-bird, but he says it only comes by chance and singly into the market; indeed, he seems never to have met with it. It is related to *T. rufiventris*.

† The White-banded Mocking-bird, a very beautiful species inhabiting Paraguay, the Argentine Republic and Bolivia.

qualities of bird-music, plaintiveness, and joyousness, in some indefinable manner.

"I have never heard this species sing in a cage or anywhere near a human habitation; and it is probably owing to its reclusive habits that its excellent song has not been hitherto noticed. Azara perhaps mistook the song of this species for that of *Turdus rufigentris*—a very inferior vocalist.

"The nest is made in the centre of a thick bush or tree 6ft. or 8ft. above the ground, and is a deep, elaborate structure, plastered inside with mud, and lined with soft, dry grass. The eggs are four in number, oblong, the ground-colour light blue, abundantly marked with reddish-brown spots."

Dr. Russ says that as this, "like unhappily all the Thrushes, is only imported seldom and singly, or at best in pairs, I was very eager to be able to thoroughly observe the pair in my possession." It would seem, however, that he is not speaking in his own person, for he continues (Mr. Frank has written the following): "The birds were quite tame with me, and to all appearance thoroughly healthy, so that I hoped they would soon proceed to breed. They had a perfect propensity for bathing and also liked their food moist; they carried quantities of it to their drinking-water in order to wet it. I received them under the name of Brazilian Mock-Thrushes, but they did not appear to deserve this title, as the song of the male was insignificant, and, so far as I could ascertain, it never made any attempt to copy the song of other birds. The male sang fairly freely, and the song, though both soft and incapable of being highly esteemed, was yet pleasing. Unfortunately the female of my pair soon died, so that I was successful in recording no attempt at breeding."

Dr. Russ furthermore says that Mrs. Albrecht, who kept a male for a long time, did not think much of its song, but considered it quite poor, and Dr. Russ himself came to the same conclusion. Now, although I have elsewhere pointed out that Mr. Hudson often speaks in the highest praise of the songs, even of such birds as the Grey Cardinals, it must in fairness be borne in mind that, in the present instance, he himself says that he has never heard it sing in a cage or near human habitations, so that perhaps it never sings properly in captivity. It has been represented in our Gardens.

WHITE-BELLIED THRUSH (*Turdus albiventris*).

In aspect and character it resembles the White-throated Thrush, but differs as follows: The brighter colour of the head and nape, the longer tail, coloured like the rest of the upperside, the weaker, less distinct streaks by the under-mandible and the throat, the absence of a pure white unstreaked throat-patch, the deep rust-red on the under wing-coverts. Its chief colouring is grey, washed with olivaceous brown on back and wings, the throat is streaked white, and the abdomen whitish grey; the under wing-coverts are reddish yellow, so that the bird, if it lifts its wings, produces rather a startling effect; the large eyes are of a brilliant deep brown. I take this description from Russ. Habitat, South America.

This Thrush seems to have a wide distribution; according to Burmeister it occurs over the primeval forest region of the northern coast tracts of Brazil, at Bahia, Para, and Guiana; and von Berlepsch records it also from New Granada. It lives in the low scrub of young saplings, as also in the thickets on the steppes. Mangelsdorff says that they nest upon the heights near the mountain borough of New Freiburg. He thus describes the song as he heard it uttered by the wild

bird:—"The song is horribly bungling, a chopped-up chirping, properly hardly to be called a song, although it is perfectly recognisable as of the Thrush character." Most Thrush-lovers will regard this as a cruel libel upon their favourites, but I can well imagine that a loud-voiced House Sparrow trying to sing like our Song Thrush might irritate a musical person. We forgive the staccato repetitions of our native friend, because his notes are clear and joyous, but if they were nothing better than a disjointed chirping I doubt if we should do so.

Mr. C. von Schlechtendal, who received a specimen of this bird from Miss Hagenbeck, describes the song as—"tui, tui, dituh, dituh, dituh"; hardly what I should have characterised as a disjointed chirping, but not unlike the early conversations of Sparrows, if we convert it into its English equivalents thus—*teui, teui, delec, delec, delec* (usually written *telee*, I think). Schlechtendal says that, although far inferior to that of our Song Thrush, he was able to endure the song, because the bird was confiding towards himself; no doubt one does forgive a good deal to a friendly pet. This bird also has been seen in our Zoological Gardens: it is a rarely imported bird, and very little seems to be known about its wild life. Burmeister says nothing about the nest or eggs.

SORRY THRUSH (*Turdus tristis*).

The whole upper surface is clear olive-brown, the head and tail washed with bluish ash, the brown throat-streaks less distinct than in *T. leucomelas*, and less close and numerous; breast and sides of abdomen clear bright yellowish brown, as also the under mandible, which is also shorter, as the wings and tail are longer than in the aforementioned species. Habitat, Mexico, Honduras, etc. I have been unable to obtain any information about this species beyond the fact that it has been represented in the living collection of our London Zoological Society. It is, of course, probable that its wild life would not differ greatly from that of *T. leucomelas*, and that both nest and eggs would be of a similar character.

From his remarks I should judge that Dr. Russ never possessed *T. tristis*, and was not acquainted with anybody who had.

GRAY'S THRUSH (*Turdus Grayi*).

Entire upper surface dull olivaceous brown, flights dark brown, the outer webs with pale borders, broader borders of inner webs faint reddish yellow; below ash-grey, the inner webs broadly bordered with fawn-yellow, large and small under wing-coverts dull orange-yellow; tail feathers blackish brown, indistinctly marked with dark and light bars; breast clear fawn-brownish, abdomen, sides and under tail-coverts clear brownish yellow; bill greenish grey, the tomtum and tip lighter (in winter entirely grey with the exception of a yellowish tip); eyes brown with yellowish orbital ring; feet greenish horn-grey. The female is perhaps slightly duller and smaller. Habitat, Central America to Colombia.

According to Dr. Frantzius this is one of the most abundant and widely distributed of the Costa Rican Thrushes. "I met it both near the seashore and at a height of 6,000 ft. During the dry season one seldom sees it, but in March, shortly before the commencement of the rainy season, one hears its characteristic Thrush note in the hedges; with the beginning of the rainy season, however, when the breeding-time arrives, its monotonous song, which one recognises from early morning to late in the evening above every other wild thing, becomes irritating in the extreme. The Costa

Ricans says, when it utters its loud note at the commencement of the rainy season, it cries that rain is coming. Its favourite food consists during the dry season of the small fruits of various wild species of figs, which it finds in extraordinary quantities on the large trees of the genus *Ficus*, which are always covered with foliage."

The nest is built in hedges and other low shrubbery in the months of April and May; it is formed of slender twigs, rootlets and fibres, and lined with still finer roots and bents. The clutch consists of three eggs with a pale brownish green ground tint, spotted and speckled with red-brown, most densely at the larger end, where they form a confluent mass.

According to Mr. A. Boucard (Proc. Zool. Soc., 1878, p. 50), this species is very abundant at San José during the fruit season, and is particularly fond of a small fruit called "ceresa." He says: "I have two eggs of this bird, found in one nest built in the centre of an alce growing on the road. They are green, with rufous spots."

According to Russ, this species is more frequently imported than the other Thrushes. He says: "I received a male from Mr. L. Ruhe, in Alfeld, and am therefore able to describe it from the living bird. Mr. H. Burghard, of Halle, possessed a Gray's Thrush for a long time, and says it always keeps in good plumage and clean in a cage, also it is not so stupidly nervous as other Thrushes; its moult is got through quickly and satisfactorily. The call-note resembles that of our resident Greenfinch, and sounds like *schwainz*, only with the distinction that the tone is deeper and much weaker. This Thrush feeds greedily upon all kinds of fruit. It is an unusually industrious songster, even during its change of plumage. The song resembles that of the Song Thrush, yet is much deeper and weaker in tone, for which reason it is preferable as a chamber bird."

After what Dr. Frantzius says about the irritating character of the song of this species, and Mr. Burghard as to its resemblance to that of the Song Thrush, excepting in its deeper and weaker tone, it is rather surprising to continue Dr. Russ's account and note how highly it is praised by Selater (presumably Dr. Selater), and to see an effort later on (in imitation of Beckstein's attempt to record the song of the Nightingale) to reduce the whole performance of Gray's Thrush to words running into twenty-seven separate phrases, with appropriate comments. One would think so varied a song must be the result of the carefully recorded utterances of several individuals, for if not the statement of Mr. Burghard must be a rank libel, and that of Frantzius a blasphemy only possible to a man with no ear for music.

Blackbirds or Ouzels (*Merula*)

GREY-WINGED BLACKBIRD (*Merula bouboul*).

Male, above black, with a large whitish-bordered dust-grey patch, formed by the greater coverts and outer webs of the middle flights, on the wing; under surface slightly paler, with greyish mottlings on the sides somewhat after the fashion of the Ring Ouzel. The female is brownish ashy, paler below, the wing patch red-brown with whitish borders; bill, orbital ring and feet orange-yellow; eyes brown.

According to Jerdon, "found throughout the whole extent of the Himalayas, keeping generally to an elevation from 5,000ft. to 8,000ft. It is tolerably common, but rather shy, and does not show itself in the open or in gardens so much as the Neigherry Blackbird, and its song is, I think, hardly equal to that the Neigherry

bird. I obtained the nest at Darjeeling, made of twigs, roots, and moss, and with three or four eggs of a pale blue-green, with numerous light brown spots." ("Birds of India," Vol. I., pp. 525-6.")

Formerly this was an extremely rare bird in the trade, our Zoological Gardens being, I believe, the first to possess it; even now I think the only specimens in the country are those hand-reared and imported by Mr. E. W. Harper about the year 1902, of which he gave me one specimen on February 15th, 1904.

When the winter was over, Mr. Allen Silver having kindly obtained for me a healthy female English Blackbird, I turned the pair into a large garden aviary in the hope of breeding hybrids from them, but owing to the interference of an English cock Blackbird, which persistently hung about the aviary and fought the Indian bird through the wirework all through the summer and up to the end of February, 1905, no attempt was made at breeding; however, with a little trouble we caught and caged the offender (which makes a very nice song-bird). About June 10th or 11th my birds built high up in the most sheltered corner of the aviary, the structure being formed of hay and twigs compacted with a mixture of mud and dead leaves, and lined with finer hay.

I have no doubt that in the first day after the hatching of the three eggs the young were fed almost entirely upon yolk of egg selected by the cock bird from the soft food mixture, for they must have hatched out quite a day before I discovered the fact and began to supply the parents with abundance of worms and cockroaches; even after that the egg was always picked out and carried up to the young before the old birds helped themselves. I first heard the voices of the young on July 3rd, and on the 6th I was unfortunately away from home until the evening, so that worms were not supplied so frequently, and in consequence two of the young died; the third was completely reared, but proved to be a hen, and almost of a uniform olive-brown colour.

In 1896 a nest was built upon the top of the previous year's structure, and the hen began to sit on May 31st; the first youngster was hatched on June 14th, and I had to work hard to supply the birds with worms. As on the previous year, three eggs were laid, all hatched, and on this occasion all were happily reared; they assumed their adult plumage about October, and proved to be two males and one female, the males black but much browner than either of the Ouzels from which they were bred, especially on the under-parts, and with a red-brown patch on the wing answering to the grey patch of the Grey-winged Ouzel, the bill and orbital ring orange-yellow, but the feet brown nearly as in the English bird. The female was very different from its sister of the previous year's hatching, being almost like a typical hen Grey-winged Ouzel.

When the Grey-winged bird first came into my possession it had very little idea of song; but after a few months spent outside it sang a very respectable combination song, evidently picked up from the Song Thrush, Blackbird, and Wren. The young hybrids do not sing so well, their voices being much harsher. Perhaps with a deterioration in colour due to reversion towards the type from which the two parent stocks have descended, there may be a correlated deterioration in the character of the vocal organs, and a consequent return to a more savage and uncultivated attempt at music.

* I have quoted a fuller account of the nesting-habits from Oates' edition of Hume's "Nests and Eggs of Indian Birds" in a paper published in *The Avicultural Magazine*, N.S., Vol. III., pp. 246-7.

YELLOW-FOOTED BLACKBIRD (*Merula flavesces*).

Above glossy black; back, rump, upper tail-coverts, abdomen and thighs slightly greyer; middle of abdomen and tips of under tail-coverts white; bill brilliant yellow; eyes reddish amber; feet of a remarkably bright yellow. The female is dark olivaceous-brown, paler below; bill brownish yellow. Young more dingy in colouring; the back, abdomen, and sides leaden-grey.

According to von Berlepsch, this bird is confined to the coastal regions of Middle and Southern Brazil. It is a little smaller than the European Blackbird. Burmeister found it in the woods on the coast near Rio de Janeiro, and also further to the north; it was not rare at New Freiburg. Paul Mangelsdorff observed it nesting on the heights around New Freiburg, and in the autumn he saw it in the lower valleys. Its calls resembled those of the European Blackbird. Prince Wied gives it the credit of being a good songster, but says nothing further respecting it. Von Pelzel also in like manner says, on the authority of Natterer, that it sings very charmingly, and Mangelsdorff declares that the song of this species was much praised by the owners of two specimens not for sale which he saw in cages. Dr. Russ, on the other hand, who frequently saw an example of the Yellow-footed Blackbird in the shop of W. Mieth, at Berlin, states that neither Mr. Mieth (during the years in which he possessed it) nor he ever heard a song from it, so that he was almost convinced that the species after all could not be a good songster. He says that it was always in excellent plumage, and moulted without difficulty; but he admits that it was not kept in a very spacious cage, and did not receive sufficient variety in its food—quite enough, in my opinion, to account for the bird not feeling cheerful enough to sing.

Russ observes finally that while we fail to find the Yellow-footed Blackbird up to the present time in the records of nearly all, even of the largest Zoological Gardens, the Amsterdam Garden alone has exhibited it. It is certain that, up to the publication of the ninth edition of its "List of Animals," our London society had not secured it.

CHINESE BLACKBIRD (*Merula mandarina*).

Resembles the European Blackbird, excepting that it is considerably larger and distinctly paler on the underparts; the bill much stouter.

Messrs. La Touche and Rickett published the following interesting notes on the habits of this Blackbird in *The Ibis* (Eighth Series, Vol. V., 1905, pp. 42, 43): "A very common resident on the plains,* frequenting gardens and copses, and, like the Magpie-Robin (*Copsychus saularis*), always to be found in the vicinity of human dwellings. The nest is placed high up in some tall pine or other big tree. It is built on one of the large boughs in a fork near the extremity of a branch, or in the angle formed by one branch with another or with the trunk.

"The materials used are fine twigs, straw, dry grass, moss, roots, dead leaves, and a variety of odds and ends, such as human hair, paper, etc. These are all plastered together with fine mud in varying quantities, and lined with fine dry grass, roots, and sometimes pine-needles. The amount of mud used is often very considerable.

"According to Rickett's observations, the female is the sole architect, the male sitting on a branch near the nest singing, and attacking any birds that approach, especially Crows and Magpies, while he does not hesitate to swoop down at a prowling cat. The young in the nest appear to be fed chiefly by the female, but as soon as

they leave the nursery the male takes his share in caring for them. Nesting begins in April, and two broods are reared.

"The eggs are four or five in number, and, as a rule, ovate, but vary a good deal in shape as well as in colour. Forty-one eggs average 1.18in. by .87in. They are blotched, spotted, or speckled with various shades of red over underlying violet spots. The markings often form a cap, usually at the larger end, but sometimes at the apex.

"The ground-colour varies from pale greenish to bluish green, whilst occasionally it is of a reddish tint."

In his "Field Notes on the Birds of Chinkiang, Lower Yangtse Basin" (*The Ibis*, 1906, p. 625), Mr. La Touche says: "The Chinese Blackbird is very common on the plain, but appears to be absent from the low hills and lower country at the back of Chinkiang. The natives rear it in cages, as in South China. It breeds commonly on the plain from April to July. Fresh eggs were brought to me on April 20, and some nearly fresh on July 11, so that there are two or three broods during the year. A nest taken on June 18 contained six nearly fresh eggs. The nests, as in Fokkiea, are built on the boughs of trees, generally at a great height from the ground."

Considering that this is a common Chinese cage-bird, it seems strange that it should be so extremely rare in the European bird market. One would suppose that this large Blackbird would be most welcome both for cage and aviary, and would be an interesting species to breed in captivity. Yet Dr. Russ says: "It once arrived at the Gardens of Amsterdam, but otherwise has nowhere come to hand alive."

Another species said to be related to our Blackbird, but smaller—the Silky-black Blackbird (*Merula atrosericea*) from Colombia and Ecuador—is reported by Russ to have been once received by the dealer H. Fockelmann, of Hamburg, who staged it at the exhibition of the "Ornis" Society, in 1887. He gives no notes on its wild life, and I have not discovered any so far.

GREY BLACKBIRD (*Merula cardis*).

The male is greyish-black, wings browner; axillaries slate-grey; outermost tail-feathers with broad whitish borders to the outer webs; underparts blackish slate-grey; middle of breast and abdomen white; sides with large dark spots; bill orange-yellow; feet yellowish horn-grey. Female, olive-brown, every feather edged with greyish-brown; sides of head, angle of lower-mandible and throat grey-whitish, streaked with brown; upper breast olivaceous slate-grey, obscurely spotted with dusky; breast, sides of abdomen, and axillaries, bright chestnut; the first obscurely spotted with dusky; middle of breast and abdomen white; bill brownish grey. Habitat, Japan and China.

According to Blakiston and Pryer, this is a common breeding bird at Fujisan, and also occurs in Yezo; it sings beautifully. The nest is often situated on a tree-stump, but also on branches near to the trunk, and is almost entirely formed of moss. The clutch consists of five greenish or reddish white eggs which are spotted with brown umber. (Cf. Russ, "Fremdl. Weichfutterfresser," II., p. 73.)

Seebohm ("Birds of the Japanese Empire," p. 46) observes:—"The Grey Japanese Ouzel is a lowland bird, and breeds abundantly at the base of Fuji-yama. The nest is generally placed in the fork of a small tree overhanging a stream, and is composed of moss, roots, and dry leaves, with a foundation of mud. It is lined with grass, fine roots, and horsehair (Jouy, Proc. United States Nat. Mus. 1883, p. 277). Eggs in the Pryer collection resemble those of the Missel Thrush, but are

* In the Province of Fokkien, S.E. China.

slightly smaller. This bird is a fine songster, and is much valued by the Japanese as a cage-bird (Blakiston and Pryer, Trans. As. Soc. Japan, 1882, p. 165).

"It leaves Japan in autumn to winter in South China and Hainan. I have been unable to find any evidence in favour of the statement (David and Oustalet, "Ois. Chine," p. 150) that it migrates to the valley of the Amoor in spring."

This species has been exhibited at the London Zoological Gardens.

GREY-HEADED BLACKBIRD (*Merula castanea*).

Male with head, neck, and throat ashy whitish or greyish, the crown dark and brownish; remainder of plumage light chestnut bay, darker on interscapulars, paler and brighter on under parts; wings blackish, the tertials, brown-edged, tail blackish, under tail-coverts mingled brown, black and white. Female duller, the head and neck browner, the wings and tail brown, the outermost tail feathers sometimes white-tipped, under tail-coverts brown and white; bill, orbits and legs yellow; eyes brown. Habitat, India.

Jerdon says that he "procured a few specimens of this Ouzel at Darjeeling, in winter only; and it is not very common there, frequenting open forests." ("Birds of India," Vol. I., p. 527.)

In Oates's Edition of Hume's "Nests and Eggs of Indian Birds," Vol. II., pp. 92-3, we read:—"Very little is known of the breeding of the Grey-headed Ouzel. A nest containing five eggs was taken on April 20th near Kotegurh, and Colonel C. H. T. Marshall took a nest at Murree.

"The Kotegurh nest was placed in a bank, was 6in. in diameter, and 4in. in height, composed of moss, with a good deal of dead fern in the base of the nest, and only a little earth, and lined with fine grass. The cavity was about 3.5in. in diameter, and 2.75in. in depth."

From Murree Colonel C. H. T. Marshall writes:—"Two nests in banks, in the beginning of June; eggs very similar to those of *M. bouboul*, but somewhat larger, being 1.25in. by 0.8in. Captain Cock got two nests in the Sindh Valley, Kashmir. It is peculiar that this species always breeds in banks. All the Meruline birds breed from about 5,000ft. to 7,000ft. up.

"I believe some people say that *Merula albocincta* and *M. castanea* are identical. I therefore send a pair of birds of the latter, shot off the nest in full breeding plumage, which may elucidate the matter. They must have two batches in the year, as on the 20th April I got a nest with four eggs just ready to hatch, which must have been laid at the end of March. The nest, too, was at an elevation of nearly 7,000ft.*

"The eggs of this species appear to vary very much. What I take to be the typical egg is a somewhat lengthened, at times more or less pyriform, oval—a pale green ground, with very little gloss, thickly and boldly mottled and freckled all over with brownish red and pinkish purple. In another type nowhere is more than a pin's point of the ground colour visible, the whole surface being excessively minutely freckled and speckled with brownish red, underlaid by faint reddish purple clouds and stains.

"In length they vary from 1.1in. to 1.35in., and in breadth from 0.75in. to 0.88in. Only eight eggs are measured, five from Kotegurh and three from Sonamurgh, taken by Captain Cock."

This species also has appeared in the London Zoological Gardens.

So-called Ground-Thrushes (*Geocichla*).

As with some other reputed ground-frequenting birds, these Thrushes appear to pass a great part of their time on trees or in bushes, rarely alighting on the ground excepting to feed. Like the typical Thrushes and Blackbirds they should have soft food, fruit and insects, spiders and worms.

ORANGE-HEADED GROUND-THRUSH (*Geocichla citrina*).

Head, neck, and under parts pale brownish orange; chin and throat paler, somewhat whitish; remainder of upper surface bluish grey; a small white spot on the median wing coverts; primary coverts with black tips; abdomen becoming paler towards vent, the latter and under tail-coverts white; bill blackish horn colour; eyes dark brown; feet brownish fawn coloured. Female duller, the back, wings, and tail tinged with olivaceous. Habitat "Throughout the whole range of the Himalayas, not exceeding an elevation of from 4,000ft. to 5,000ft. It is also found in most of the forests and well-wooded districts of Northern and Central India, extending rarely as low as North latitude 10 deg. I procured it from the jungles of the Eastern Ghats, inhabiting the same locality as the last species (*G. cyanonotus*), though much more rare. It has also been obtained in Goomsoor, in the neighbourhood of Calcutta, where quite common in the cold season, and in the forests of Central India. I procured specimens in Sikkim, but only in the warmer valleys. It extends through Assam and Burma.

"The Orange-headed Thrush keeps to woods and shady gardens; and, like the last, prefers bamboo-jungle. It feeds on the ground on insects, turning over the leaves to find them; and, as remarked by Blyth, often having its bill clogged with mud, from feeding in damp spots. It is shy and silent in general; but, during the breeding season, the male has a pretty song. Hutton found the nest at Mussooree in the forks of high trees, made of grasses, moss, stalks, and roots; and with three or four eggs, pale greenish, freckled with rufous, forming a sort of patch at the upper end." (Jerdon, "Birds of India," Vol. I., p. 518).

In Oates's edition of Hume's "Nests and Eggs of Indian Birds" we read: "The Orange-headed Ground Thrush breeds in the Himalayas from Murree to Assam, at elevations of from 1,500ft. to 5,000ft., laying from the end of April to nearly the end of June. They build a rather broad, cup-shaped nest of moss, grass, and very fine twigs, or fir-needles, lined with fine moss roots, and at times a little hair, measuring some 5in. in diameter, and with a cavity about 3.5in. broad and 1.75in. deep. The nest is placed in some fork of a moderate-sized tree, in the case of all that I have seen, at no great height from the ground.

"They lay three, and often four eggs, and one nest found below Kotegurh contained five.

"Mr. R. Thompson, writing from Kumaon, says: 'I have never found this bird except at 1,500ft. to 2,000ft. elevation at most. It arrives in our forests at the beginning of April, when the males begin to utter their sweet yet loud notes, and commence breeding operations.

"From Murree, Colonel C. H. T. Marshall tells us that this species builds about the beginning of June in the fork of a low tree about 6ft. up. Lays three eggs, pale greenish white, finely speckled with rufous-brown, forming a patch at the larger end 1in. in length, 0.8in. in breadth.

"A nest sent me by Mr. Mandelli, which was placed in a fork in a bamboo cluster at about 5ft. from the ground, is a very loose, untidy nest, composed exteriorly of dead leaves, bamboo spathes, a few twigs and pieces of decayed bamboo, all wound together with vegetable fibre. The whole of the nest is composed of

*As Blackbirds hatch in about fourteen days it is much more likely that Col. Marshall's eggs were laid in the first week of April.

much the same materials, except that interiorly there are more chips of rotten bamboo and more vegetable fibre, and very little dead leaf; there is a mere pretence for a lining, a dozen or so very fine wirelike twigs being wound round at the bottom of the cavity.

"Mr. Oates writes: 'May 22nd. Nest in a shrub in a ravine near Pegu, about 4ft. from the ground, made of roots and strips of soft bark, the ends of some of the latter hanging down a foot or more. The interior lined with moss and fern roots. Interior and exterior diameters 4in. and 5in. respectively; inside depth about 2in. and bottom of nest about 1in. thick. Contained three eggs quite fresh, measuring 1.04, 1, and 1.06 by 0.75, 0.76, and 0.79 respectively. A fourth egg found on the ground near the nest was 1.03 by 0.78.'

"Another nest with three eggs was found on June 10th.

"The eggs are a broad oval, much pointed towards one end, about the size and shape of the European Water Ouzel's egg. The ground colour is dull greyish or greenish white, and each has a conspicuous mottled and speckled red-brown cap at the large end. The cap is not sharply defined, and beyond it specklings and minute streaks of the same colour extend more or less over the whole of the rest of the surface of the egg, in some cases ceasing entirely, in others diminishing in frequency as they approach the smaller end.

"Some of the eggs of this species have a very fine gloss, and most of them are fairly glossy. In some the markings are brighter and redder, in others duller and browner. Dull purple markings are generally intermingled in the cap, and though this is generally at the larger end I have one egg in which it is at the smaller end.

"In length the eggs vary from 0.82in. to 1.1in., and in breadth from 0.7in. to 0.82in., but the average of a dozen eggs is 0.99in. by 0.77in."

Hitherto this beautiful bird has not been freely imported. According to Russ, the London Zoological Gardens received a specimen in 1876, since which time he believes at least two examples were imported into London. Mr. Emil Linden, of Rudolfszell, at the Bodensee, obtained one in 1877, and another reached the Frankfurt Zoological Gardens in 1878; this Thrush was also offered by the Jamrach of London in 1881 and 1882 at £3 ameece. Little is known respecting its habits in captivity.

WHITE-THROATED GROUND-THRUSH (*Geocichla cyanonotus*).

Male—head, nape, sides of neck, breast and abdomen rusty orange, remainder of upper surface bluish or leaden grey; the flights and tail feathers somewhat dusky, a white patch on the outer median wing coverts and a white tip to the outermost tail feather; lores white, cheeks and ear coverts white, crossed by two parallel brown bands from below and back of eye to throat, the first becoming somewhat ferruginous at its lower end, which crosses the side of throat to the breast; vent and under-tail coverts white; bill blackish, lower mandible somewhat orange towards the base and along tomium; eyes brown; feet, according to Jerdon, flesh-brown, but represented as orange in the illustration of Mr. Phillips's example. Female differs from male in its colours being less pure.

The White-winged Ground-Thrush* is peculiar to the jungles of Southern India, extending as far as Goomsoor on the east coast, and to Bombay on the west side of India. It is most abundant in the forests of Malabar and Wynaad, but is not rare in the jungles

of the Eastern Ghats. It prefers bamboo jungles, feeds on the ground, and generally perches low. Its food is chiefly insects, such as ants, cockroaches, and beetles, but not infrequently also stony fruit. It has rather a sweet song, not often heard, however. Mr. Ward procured the nest in N. Canara, made of roots and grass, placed at no great height from the ground; and the eggs, three in number, were pale bluish, speckled with brown." (Jerdon, "Birds of India," Vol. I., p. 517.)

From Oates's edition of Hume's "Nests and Eggs of Indian Birds," Vol. II., pp. 98-9, I quote the following: "Mr. G. W. Vidal writes: 'The species is plentiful about Dapuli in the Southern Konkan. It breeds in the gardens about the station in June, July, and August. I have not myself taken the eggs of this species, but Mr. A. Jardine, of Dapuli, who knows the birds well, and who at once recognised specimens in my collection, has taken a great many nests, and has given me several eggs. He writes: 'The nest is made of roots, twigs, and grass, with a good deal of mud. The egg-cavity is about 5½in. in diameter, and from 2in. to 3in. deep. The nest is generally placed in the fork of a tree low down. The highest I ever saw was about 15ft. from the ground in a kinjal tree, but they are mostly found in mango trees. When the Thrushes have young they will not let anyone go near the nest, but come flying at you, and peck like fun.' The eggs vary greatly in colour and markings, presenting two or three very distinct types."

Mr. J. L. Darling, jun., to whom I am indebted for the eggs of this species, has favoured me with the following note in regard to its nidification. He says: "The first nest that I found of the White-throated Ground-Thrush I took on Kulputty Hill, in the Wynaad (Malabar), at an elevation of about 2,800 feet above the sea. It was placed in a small tree, in a fork about 11 feet from the ground, precisely in the same kind of situation as our Nilghiri Blackbird would choose. The nest, too, was very like a Blackbird's—a foundation of leaves and sandy clay, the main body of the nest composed of roots, intermingled with a few twigs and a little grass, and the cavity lined with roots and slender petioles of the nelly-kai.

"This nest contained three partly-incubated eggs. The birds were very shy. I visited the nest four times before I shot the male and six before I shot the female. Directly I approached the nest the bird noiselessly dropped on to the ground and crept away through the brushwood. When disturbing them I noticed that their call was low and sweet like that of the Blackbird when similarly disturbed.

"On the 9th I found a second nest, this time about 500 feet lower, at the foot of the hill. It was built in a loquat tree, in a fork about 22 feet from the ground, and was in every respect similar to the last, except that a little moss had been used in the construction. The birds were very brave, defending their nest against one of those thieves of Crow Pheasants, and it was the noise they made that attracted me to the nest. Again I was struck with the great similarity of their notes to those of the Blackbird when its nest is being robbed. This nest contained four perfectly fresh eggs, of which I took three, and then watched the old birds return to the nest, when they broke the one egg I had left to pieces. They have, however, begun another nest in a jack tree close by.

"Their song is never heard except in the early mornings and evenings, and mostly in the latter. They go hopping about under the coffee trees and scratching up and turning over the leaves in search of food."

Russ does not mention this species, though he does refer to one or two others which have never been im-

* Jerdon's name for the species; but not at all a good one.

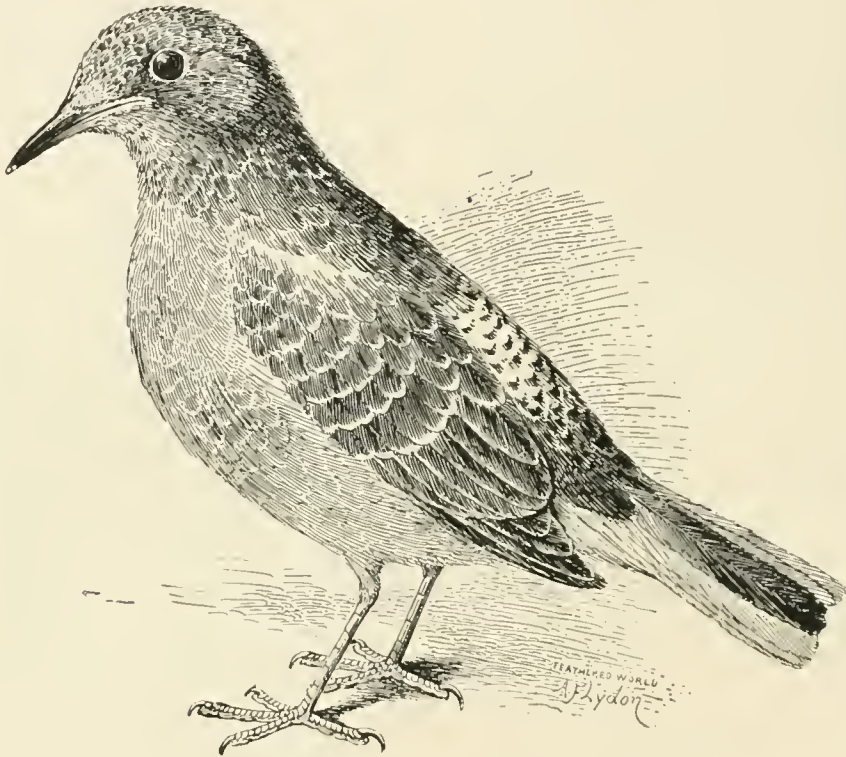
ported. The White-throated Ground-Thrush has been imported more than once. Mr. Reginald Philipps (*The Avicultural Magazine*, N.S., Vol. II.) writes a long account of the species (pp. 179-188). He tells us that he obtained two males on the 8th October, 1902, and says that, "although a great deal on the ground and in low bushes, they are often on the higher perches. They prefer to roost on their natural twigs, sometimes about 3ft. to 4ft. from the ground, very often on the highest available spot."

Contrary to what Mr. Darling says of the song, Mr. Philipps says "they sing from early dawn until nearly dark for fully nine months out of the twelve"; and, in opposition to what Jerdon says about the song being

He says that some experts during the summer give nothing but fresh ants' eggs, others rich Nightingale food and shredded figs, and others, again, equal parts of ants' eggs and white worms moistened with grated carrot. As I find that my own mixture, with fruit and insects, seems to suit all kinds of insectivorous birds, I should think Russ's own suggestion as to the correct food is good enough.

COMMON ROCK-THRUSH (*Monticola saxatilis*).

Male: Head and neck slate-blue; mantle darker, varied with blackish brown; lower part of back white; rump bluish slate; upper tail-coverts bright orange; tail orange, excepting central feathers, which are pale



THE ROCK-THRUSH.

not often heard, he says "their clear, ringing voices have been cheering our hearts all through this dull, cheerless winter, are falling on my ears now as I write, and have this winter compelled the most captious of my neighbours, however unwillingly, to admire the glorious singing of the birds."

In the bird show at the Crystal Palace in January, 1905, Mr. Hawkins exhibited a specimen of this species, a drawing of which appeared in *The Feathered World*, and it is possible that other examples may have been imported.

Rock-Thrushes (*Monticola*).

According to Russ, these birds should be fed upon a general Thrush mixture and eight to fifteen mealworms daily, or, instead of these, on various kinds of insects, worms, slugs, berries, and various other kinds of fruit.

brown with orange bases; flights brown; wing-coverts darker, more or less fringed with white; under surface from throat downwards, including under tail-coverts and axillaries, bright orange; bill, eyes, and feet dark brown. Female: Mottled above with various shades of brown; upper tail-coverts and tail orange; below buff, suffused with pale orange and pale brown, less distinctly mottled than above; throat and breast darker; abdomen and crissum paler; under wing-coverts and axillaries orange.

Habitat, mountains of Southern Europe and Central Asia to South Siberia and China. It visits North and East Africa on migration, as well as the borders of India and North Burma. J. I. S. Whitaker thinks it probable that many examples remain in Tunisia to breed. According to Mr. Meade-Waldo it breeds in suitable localities in Morocco. He met with it at an

altitude of 10,500 feet. (*The Ibis*, 1903, p. 205.) Three examples are recorded as having occurred in England.

According to Whitaker, this and the following species are "true mountain birds, and rarely to be found at any distance from rocky ground. The rougher and more broken this may be, the better suited it is to the tastes and requirements of the birds. Wooded districts are more or less shunned, unless there should happen to be rocky ground also near at hand. The favourite haunts of *Monticola*, however, are undoubtedly wild mountain ravines and valleys strewn with huge boulders and rocks of every size, where a few dwarf bushes and an occasional stunted and weatherbeaten tree are the only signs of vegetation." (Whitaker, "Birds of Tunisia," Vol. I., p. 17.)

Russ says that "in its behaviour the Rock-Thrush resembles the typical Thrushes less than the Chats and Redstarts; though like the former, it is wise and provident, lively and active. It flies lightly and rapidly, generally in a straight direction, hovering and circling before perching. It does not hop on the ground, but runs with tail wagging or vibrating with numerous rapid bows." (Fremdl. Weichfutterfresser in "Fremdl. Stubenv." Vol. II., p. 168.)

The nest is constructed in May or June in crevices in rocks and walls, often in almost inaccessible spots; sometimes, however, in heaps of stone, and even among the roots of trees in scrub, or holes in stumps; in some localities among ruins. It is roughly constructed of moss, twigs, roots, bents, and blades of grass, upon a foundation of dead leaves, and is neatly lined with feathers and hair, or with fine rootlets and dry grass.

The eggs are four or five in number, of a glossy, bluish green colour, either spotless, or marked with a few faint brown specks, usually at the larger end. According to Seebohm, the colouring is similar to eggs of the Song Thrush, excepting that it is paler and the eggs are rounder; in tint he considered them intermediate between those of the Song Thrush and Starling.

With regard to its vocal performances, Seebohm says: "The song of the Rock-Thrush is, indeed, a sweet and varied one, and in those countries it frequents the bird is in the highest request as a cage songster, sometimes the most fabulous prices being paid for birds whose musical powers are beyond the ordinary degree of sweetness and variation. Its wild, powerful song is equal to that of the Blackcap, and, for variety and tone, comes little short of the ever-changing notes of the Thrush and the rich flute-like warblings of the Blackbird. Its call-note is a peculiar piping cry, sometimes similar to that of the Ring Ouzel." ("Hist. Brit. Birds," Vol. I., p. 283.)

According to A. von Homeyer, the courting of this species is conducted as follows:—The bird stands in an upright position, with spread wings and tail, which beat upon the ground, with widely-spread back feathers, the head thrown up and backward, the bill widely open, and the eyes half closed. It lifts itself, flutters and flaps, rising aloft after the manner of the Larks, at the same time singing loudly and powerfully, and then returning to its roost.

Attempts to breed the Rock-Thrush in captivity have been made by various aviculturists, some of whom have been successful. According to Russ, Professor Liebe, of Gera, first successfully bred it in 1871, and produced several broods. He quotes the following account in the words of that birdkeeper: "After I had bred Rock-Thrushes for three years in succession, I was able to attempt further breeding from the young. With the young females bred by me the attempt fell out badly, since none of them would pair up, to say nothing of

going to nest. It is possible that the males placed with them had been taken wild and hand-reared, and therefore were too weak for these strong females; anyhow they always flew away from them. Thereupon further breeding was carried on admirably with young males bred by me, to whom I gave young hand-reared females from Switzerland. I may now record the following results. The breeding of the Rock-Thrush in a small windowed room, or in a very large birdcage, is not very difficult. Complete seclusion, in order to avoid disturbance, is not only unnecessary but is even detrimental, for thereby many birds become wild and nervous; whereas thoroughly tame birds love the companionship of their keeper, and, moreover, palpably crave for it. Only the exact nesting-sites must be concealed from the eye of the visitor as much as possible. The pair is unwilling to nest excepting in a hole in brickwork, with a wide entrance, or in an open but little conspicuous burrow. For building material they only accept dry grass. Nest-building commences in the middle of May, and by the end of May the clutch is ready. After the hatching of the young fresh ants' cocoons of the best quality and mealworms are given. Coarse sand should not be lacking with them. After four days the old female takes them freshly-prepared old curd cheese. From the sixth day onward cheese, ants' cocoons, and mealworms form the chief constituents of the food of the young, but the female seeks in the vicinity in all other food-dishes, and now and again brings a scrap of cooked meat or fruit and the like to the nest. All kinds of insects and worms, as well as the flesh of fish, are also welcome to her. The young grow up quickly, and become larger and stronger than birds taken from the nest in the open and hand-reared. After flight they accept the ordinary food of the adults, and occasionally mealworms, and any other kinds of insects from out of doors. For the young birds a large cage is necessary, with so few perches that they must use their wings, and also some brickbats upon which they may sit."

BLUE ROCK-THRUSH (*Monticola cyanus*.)

Male: Above and below deep slate-blue, wings and tail brownish black; bill and feet black, eyes brown. Female: Above amber-brown, below mottled brown and buff. Habitat, Southern Europe to Central Asia as far as the Himalayas, Ceylon, Burma, and China, wintering in North Africa and Arabia. A single example is said to have been killed in the county of Westmeath, in Ireland, in November, 1866.

Colonel Legge says: "This species varies in its habits according to the locality it frequents. Its usual custom is, doubtless, as its name implies, to affect rocky places, boulder-strewn hillsides, wild gorges, the stony banks of rivers, the vicinity of mountain precipices, and other barren and inhospitable spots; and when thus met with is a shy and wary bird, manifesting a very restless disposition, flitting from rock to rock, and uttering a clear whistle as it takes flight on the approach of danger." Mr. Fair informs me that it displayed all those restless manners on both occasions when he met with it in the Ceylon hills. In parts of India, however (and the same is the case with the Eastern variety), it is quite a familiar bird, "perching on house-tops, feeding about stables, and frequently even entering verandahs, and sheltering itself during the heat of the day on beams and the eaves of houses." "It is, in fact," writes Jerdon, "supposed to be the Sparrow of the English version of the Scriptures, 'which sitteth alone on the house-top.'" Mr. Oates has a similar experience of it in Pegu. He says that

"it is not unfrequently seen singly, more especially in the vicinity of wooden bungalows. At Thayetmayo one occasionally came into my compound for a day or so, and then suddenly disappeared for a month or two. It will flit into the verandah, sit on the pest-plate, and remain for a few minutes in perfect silence." Mr. Elliot likewise noticed that it was very tame, often coming into houses, and hopping about the verandah. It is usually a solitary bird, and feeds entirely on the ground on ants, Coleoptera, and various insects. Its song is said to be very sweet, and is commenced in India for some time before it leaves the country, not when feeding, but when it happens to have taken shelter during the heat of the day. It is caught in the Deccan and on the Bombay coast by the natives, and is much prized as a songster, being called by them the *Shama*, which name, however, really applies to the Long-tailed Robin (*Cittocinclia macrura*). Col. Irby, who publishes some interesting notes on its habits in the "Birds of Gibraltar," writes that it frequents daily the same spots, attracting considerable notice, both from its agreeable song and conspicuous habits. He further remarks: "The Blue Thrush very often perches on trees, and at Gibraltar and Tangier is frequently seen on the housetops, though generally observed on bare, rocky ground. It is sometimes found in wooded parts, if there are any high rocks; for instance, a pair nest at the first waterfall of Algeiras, which is in the midst of a dense forest. It has a habit in the courting season of flying straight out from a rock, and then suddenly dropping with the wings half shut, like a Wood Pigeon in the nesting time. The Blue Thrush is very fond of ivy berries and all fruit."

Lord Lilford writes:—"It is very omnivorous; literally fish, flesh, fowl and fruit I have seen it devour with apparently equal gusto, to say nothing of almost any insect." ("Birds of Ceylon," Vol. II., p. 462.) Whitaker observes: "The *Passero solitarius*, as this bird is called in Italy, is greatly prized in that and other Mediterranean countries, not only on account of its agreeable song, but also because of its bright and attractive ways, for though rather shy in its natural state it is capable of becoming remarkably tame in confinement, particularly when brought up from the nest. At the present time I have one which is a delightful pet."

"The song of the Blue Rock Thrush is composed of sweet, flute-like notes, resembling some of those of the common Thrush, although not quite equal to them. The bird is also a good mimic, and has a facility for acquiring the notes of other birds."

"The nest of this species, which is generally to be found in a fissure or cleft between rocks, or in the hole of a wall, is composed chiefly of root fibres loosely put together. The eggs, usually five in number, are of a beautiful glossy greenish-blue, and in the case of all those in my collection are without any spots. Average measurements, 25mm. by 19mm. ("Birds of Tunisia," Vol. II., p. 20.)

Whistling Thrushes (*Myiophonus*).

According to Russ, these birds should be fed like other Thrushes, not forgetting the item of fruit. Although he only knows of one species as having been imported, he describes three.

HORSFIELD'S WHISTLING THRUSH (*Myiophonus horsfieldi*).

Male—Above and below, indigo-black; a frontal band not extending to base of bill, and shoulders, bright cobalt blue; some of the feathers on the under surface edged with the same colour; bill black; eyes dark brown; feet brownish blue. Female undescribed as

distinct, but (judging by description of Bligh's Whistling Thrush) the blue shoulder patch should be paler and more conspicuous. Doubtless the form of the bill also differs. Habitat, forests of Southern and Western India. "It especially delights in mountain torrents, and if there is a waterfall it is sure to be found there. It feeds on various insects, earthworms, slugs, shells, and also on small crabs, which I have very frequently found constituting its chief food; and the remains of legs, etc., of these crustacea are generally found on the rocks at the edge of every pool of water frequented by it. I once procured its nest, placed under a shelf of a rock on the Burliar stream, on the slope of the Neilgherries. It was a large structure of roots, mixed with earth, moss, etc., and contained three eggs of a pale salmon or reddish-fawn colour, with many smallish brown spots. I kept a bird, which I had wounded slightly, for some weeks, feeding it on earthworms and snails, and every morning before sunrise I would hear its fine whistle. Its song consists of four or five beautifully clear whistling notes, so like the whistle of a man or boy as to be constantly mistaken for it, and it is known to many on the Neilgherries as the Whistling Thrush. It would be a highly desirable and interesting cage-bird."—Jerdon, "Birds of India," Vol. I., page 499.

In Oates's edition of Hume's "Nests and Eggs of Indian Birds" are many accounts, from which I select the following:—

"Mr. W. Davison says, 'The Malabar Whistling Thrush (rather a misnomer, by the way) breeds on the slopes of the Nilghiris, never ascending higher than 6,000ft. The nest is always placed on some rock in a mountain torrent; it is a coarse and, for the size of the bird, a very large structure, and though I have never measured the nest I should say that the total height was about 18in. or more, and the greatest diameter about 18in. Exteriorly it is composed of roots, dead leaves, and decaying vegetation of all kinds; the egg cavity, which is saucer-shaped and comparatively shallow, is coarsely lined with roots. It breeds during March and April.'"

The statement that the nest is always placed on a rock in a mountain torrent is disproved by Miss Cockburn, who took eggs from nests built high up in holes in trees both in March and July; while Mr. J. Darling, jun., remarks that "this species commonly builds in holes in trees." He says: "July 22.—Nest found near Kythery, S. Wynaad, in a crevice of a log of a felled tree in a new clearing 11ft. from the ground. Nest built entirely of roots. The foundation was of roots from some swampy ground, and had a good deal of mud about it. Another nest was in a hole of a dead tree 32ft. from the ground."

Mr. Frank Bourdillon writes from Travancore: "Very common from the base to near the summit of the hills, frequenting alike jungle and open clearings, though generally found in the neighbourhood of some running stream. I have known this species to build on ledges of rock and in a hollow tree overhanging a stream, in either case constructing a rather loosely put together nest of roots and coarse fibre with a little green moss intermixed. The female lays two to four eggs, and both birds assist in the incubation."

"The eggs of this species . . . are broad, nearly regular ovals, slightly compressed towards the lesser end, considerably elongated, and more or less spherical, and pyriform varieties occur. The shell is fine, and has a slight gloss; the ground-colour is pale salmon-pink or pinkish white, occasionally greyish white. The whole egg is, as a rule, finely speckled, spotted, and splashed with pinkish brown or brownish pink. The markings in

most eggs, everywhere very fine, are often considerably more dense at the large end, where they are not unusually more or less underlaid by a pinkish cloud, with which they form an irregular, ill-defined and inconspicuous cap.

"At times, more boldly and richly marked eggs are met with. One now before me is everywhere thickly streaked with dull pink, in places purplish, and over this is thinly but rather conspicuously spotted and irregularly blotched (the blotches being small, however) with light burnt sienna brown.

"In length they vary from 1.18in. to 1.48in., and in breadth from 0.92in. to 1in." (Vol. I., pp. 124-7.)

An example of this species first came to the London Zoological Gardens in 1876. Whether others have arrived since I cannot say, but must echo Dr. Russ's hope that sooner or later they will do so.

BLUETHROATS (*Cynecula*).

Dr. Russ, perhaps rightly, omits these birds from his "Fremdlandischen Stubenvogel." Of course, they are recognised as European species, and the Arctic Bluethroat is admitted as a British species.

The very rarely imported New Zealand Robins, so-called, are referred to the Chats by him. He does not mention the South Island species (*Miro albigrons*), of which four examples were presented to our Zoological Society in 1893, but he gives a very brief notice of what he calls the "Long-legged Chat" (*Miro longipes*), a specimen of which, he tells us, was received by the Berlin Zoological Gardens in 1896. He says it is an inconspicuous bird, which in behaviour, movements, and song greatly resembles our Robin. For descriptions of the plumage and wild habits of these birds, should any of my readers ever be fortunate enough to possess them, I must refer them to Buller's "Birds of New Zealand"; but it is not very probable that they will need to refer to it.

MAGPIE ROBINS (*Copsychus*).

THE DAYAL (*Copsychus saularis*).

The trivial name of this bird has been variously spelt, but I have adopted Dr. Jerdon's rendering as being most likely to be correct.

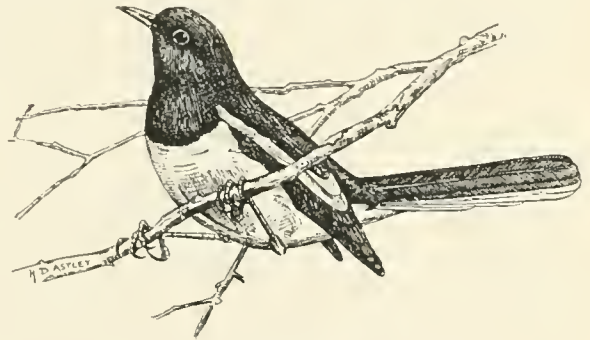
The entire head, neck, breast, and upper parts of the male (excepting the four outer tail-coverts, which are white) are black, glossed with blue excepting on the wings. The remainder of the under surface is white. The female is slate-grey above; wings brown; throat and breast ashy; abdomen sandy brown, whitish in the centre. Young birds have the upper parts brown, the breast dusky with rufous spotting; bill and feet black; iris brown.

This species ranges over the whole of India and Ceylon, and eastwards to Tenasserim, being chiefly met with in well-wooded districts. Jerdon gives the following account of its wild habits:—"It is generally seen alone or in pairs, usually seeks its prey on the ground from a low perch, often hopping a few steps to pick up an insect. When it returns to its perch it generally elevates its tail, and often utters a pleasing warble. Though it frequently raises and depresses its tail, both when perched and on the ground, I cannot say that I have observed the Wagtail-like flirtation of its tail noted by Hodgson, or that it throws its tail back till it nearly touches its head, as Layard has seen. Towards the evening it may often be seen near the top of some tolerably large tree, or other elevated perch, pouring forth its song. I have always found its food to consist of insects of various kinds, small grasshoppers, beetles,

worms, etc. Hodgson asserts that in winter they like unripe vetches, and such like; but this is quite opposed to the usual habits of this group. It breeds generally in thick bushes or hedges; sometimes in a hole in a bank or tree, and occasionally in a hole in a wall, or on the rafter of a house. The nest is made of roots and grass; and the eggs, four in number, are bluish white or pale bluish, with pale brown spots and blotches. Layard says that the eggs are bright blue, and Hutton that they are carneau cream colour, but these observers must, I think, have been mistaken in the identity of the owner of the nest. The Dayal is often caged, as well for its song as for its pugnacious qualities, which, according to Hodgson, are made use of to capture others."

Mr. Hume observes ("Nests and Eggs of Indian Birds," Vol. II., pp. 80-81): "The Magpie-Robin breeds throughout India. Many resort during the nesting season to the Dhooms and Terais that skirt the Himalayas, and to the lower ranges of these latter, in which they may be found nesting up to an elevation of at least 5,000ft.

"They lay from the end of March to quite the end of July, but by far the majority of eggs are to be found alike in hills and plains during the latter half of April and May. So far as my experience goes—and I have taken scores—the nests are invariably placed in holes in trees, banks, or walls, or under the eaves of huts. I have never seen or personally heard of a well attested instance of their breeding in bushes; but it is still pretty certain, from what Captain Beavan and others



DAYAL BIRD.

have recorded, that they do, at any rate occasionally, nest in such situations.

"In the plains the nest is generally composed of roots, grass, fibres, and feathers, but in the hills moss and lichens are largely used. In shape the nest is typically a broad, very shallow, loosely-built saucer, some 4in. or 5in. in diameter, and with a central depression about an inch in depth; but they vary much, according to the shape and size of the cavity in which they are placed. Some are more regularly cup-shaped, while many are mere pads. A few small twigs, or a few dead leaves, may at times be found doing duty as a foundation; but whether placed there by the bird or deposited by the wind anterior to the construction of the nest, may be doubtful. Five is unquestionably the full complement of eggs, although once or twice I have taken four partially incubated ones."

According to Hume, the eggs are greenish, greenish white, pale sea-green, or pale slightly greenish blue, streakily blotched and mottled with different shades of

brownish red, sometimes thinly, at other times densely, sometimes forming a cap at the larger end. Many of them are perfect miniatures of eggs of *Merula similima*, and recall varieties of those of the English Black-bird. He concludes that they indicate affinity to the typical Thrushes and not to the Wheatears, as Dr. Jerdon supposed.

This species was bred in our Zoological Gardens as long ago as 1875; but amateurs have not many opportunities of following up this success, the bird being still very dear in the market. Its treatment in captivity should be much the same as with the Shama. It makes a charming and confiding pet.

I believe the Rev. C. D. Farrar is the only private successful breeder of the Dayal or Dhyal-bird in this country. The hen nested in a box in an indoor aviary, laid three eggs, of which two were hatched. These were reared on mealworms and "clocks," but both were subsequently killed by the cock bird. Mr. Farrar therefore decided that in future he would remove the cock as soon as the eggs were laid. (*The Avicultural Magazine*, 1st series, Vol. V., pp. 146-7.)

SEYCHELLEAN DAYAL (*Copsychus sechellarum*).

Male.—Blue-black, with a white longitudinal band on each wing; bill black; eyes brown; feet black. Probable female a trifle larger than the male. Habitat, Seychelles.

The habits of this bird are in all probability similar to those of the Indian bird. It is, in its native home, highly prized as a song-bird, and also for fighting purposes, according to Dr. Russ. Hitherto, our London Zoological Gardens appear to have been the only ones to exhibit it to the public. Its treatment in captivity would be the same as in the case of *C. saularis*.

SHAMAS (*Cittocincla*).

INDIAN SHAMA (*Cittocincla macrura*).

The upper parts of this bird are glossy black, with the exception of the rump, which is white; the wings have dull black flights, the outer tail feathers are tipped with white, the under parts are rich chestnut. Length, inclusive of tail, 1ft., but the tail is almost 8in. in length. The bill is black, the feet pale flesh colour, and the irides are dark brown.

The female is duller than the male, more ashy black; the flights with narrower pale borders; white tips to four outer tail feathers smaller; under surface distinctly paler.

Occurs throughout all the uncultivated jungly parts of India. Jerdon says of it:—

"The Shama frequents the densest thickets, and is very partial to thick bamboo jungles. It is almost always solitary, perches on low branches, and hops to the ground to secure a small grasshopper or other insect. When alarmed, it flies before you from tree to tree at no great height. Its song is chiefly heard in the evening, just before and after sunset. It is a most gushing melody, of great power, surpassed by no Indian bird. In confinement it imitates the notes of other birds, and of various animals, with ease and accuracy. It is caught in great numbers, and caged for its song. Many are brought from the Nepal Terai to Monghyr, chiefly young birds. It is the practice throughout India to cover the cages of singing birds with cloth, and in some places a fresh piece of cloth is added every year. The birds certainly sing away readily when thus caged, but not more so perhaps than others freely exposed. The Shama is usually fed

on a paste made of parched chenna, mixed with the yolk of hard-boiled eggs, and it appears to thrive well on this diet, if a few maggots or insects are given occasionally. It will also eat pieces of raw meat in lieu of insects."

I asked Colonel C. T. Bingham recently whether he had ever taken eggs of the Shama. He replied, "Dozens; the birds always build in holes in bamboo." I see that Hume mentions one of the nests in his "Nests and Eggs of Indian Birds," Vol. II., pp. 86-7: "On the slope of a steep spur of the east watershed range of the Mcplay river, in dense bamboo forest, I found, on April 4th, 1878, a nest of the above bird. A Woodpecker had made a hole in a partially dry wabho bamboo (*Bambusa brandisiana*) of immense girth. Of this the Shama had taken advantage, and having stuffed up the hollow from the next knot below to within 3in. of the hole with dry bamboo leaves, had above that made a loose cup-shaped nest of twigs and roots. I was eating my lunch, seated on a rock not far from the bamboo in question, and saw the female, after making two or three short flights and baulking herself in the direction of the hole, finally enter it. I approached very cautiously, and stuffing my handkerchief into the entrance hole managed to secure eggs and bird. The former were four in number, slightly set, of an oily green colour, much spotted, speckled, and dashed with umber-brown. They measured respectively 0.9in. by 0.62in., 0.87in. by 0.62in., 0.85in. by 0.61in., and 0.85 by 0.62in."

Mr. Hume observes that this species "is a permanent resident of the warm and well-watered jungles of the Peninsula of India and of Burma, but (he says) my only information in regard to its nest and eggs is from Tenasserim and Pegu."

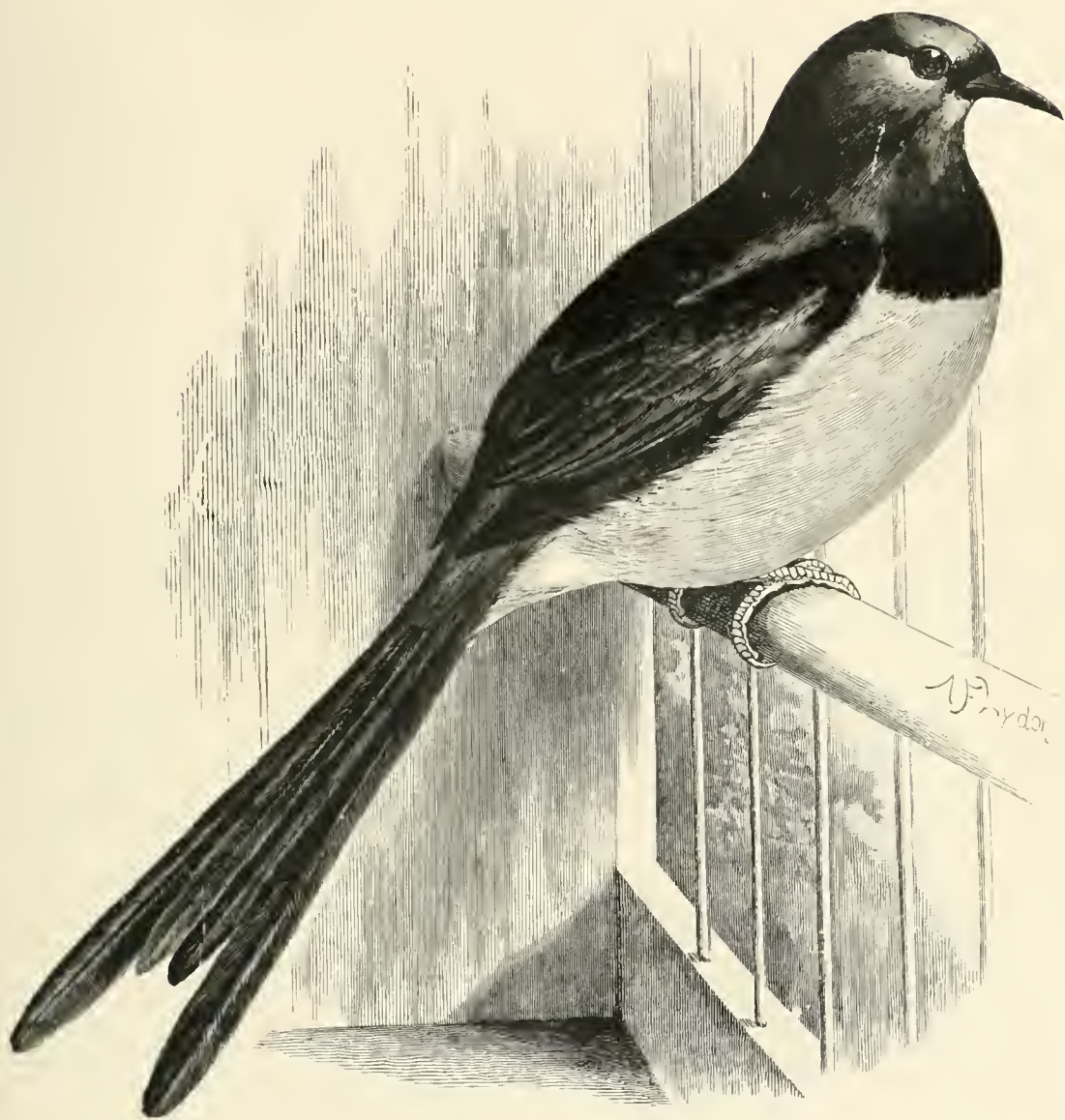
For many years I had wished to possess a Shama, in order to study its song, of which I had only heard scraps at bird shows. It was therefore with considerable pleasure that I accepted Mr. H. C. Heseltun's kind offer to give me a specimen, perfect in all respects excepting that its toes were somewhat deformed (one foot has five toes, and both hind claws are directed forward). This bird reached me through the post in November, 1903, and is still in excellent health.

The song is rich, powerful, and exceedingly varied. As a rule, it is continued in an unbroken changing melody somewhat after the fashion of that of the North American Mocking-bird. Then the bird will start upon a set phrase and repeat it over and over again, with a pause between each utterance. Oddly enough, whereas the full song could only be rendered (if at all) by musical notation, the short repetitions sound ludicrously like human words. My bird frequently repeats the following:—"What Willy! What Willy! What Willy! What Willy! What! tut, tut!"; "We don't appear to," the second syllable of "appear" much emphasised, and "Several pairs of puttee!" These sentences will be repeated until one is almost weary of them, and then suddenly there is a change.

Mr. Philipps bred the Shama in his garden aviary in 1893, and published an account of his experience in Vol. IV. of *The Avicultural Magazine*, 1st series, pp. 138-142 (1898): the young were reared upon cockroaches, mealworms, and gentles.

CHESTNUT-BELLIED SHAMA (*Cittocincla suavis*).

Differs from the Indian bird in its superior size, shorter tail, the three lateral tail feathers, and the outer portion of the next pair quite white. Dr. Russ quoted Dr. Sclater as saying that the male had a black margin to the base of the inner webs of the second and



THE INDIAN SHAMA.

third pairs, this character being absent from an undoubted female in his possession, which also had the three outer pairs of tail feathers entirely white, the body paler chestnut brown, the plumage above more dingy, and the size smaller. Habitat, Borneo.

Russ gives no information respecting the habits of this Shama, either wild or in captivity; but in *The Avicultural Magazine* for February, 1898, the Rev. Hubert D. Astley has given an interesting account of a Shama in his possession, which, according to Mr. Reginald Phillips, is probably not the ordinary species, but *C. suavis*. Mr. Astley recommends that the bird should be fed upon Abrahams' or some other insectivorous mixture, fresh chopped raw beef, mealworms, fruit, and insects. He also recommends a roomy cage and a big bath.

Several owners of Shamas have insisted upon the necessity for meat in some form, either raw or cooked, for feeding them: they undoubtedly eat it when offered, but I know that they do equally well without it, and I am not at all sure that it is good for them. I have found that butchers' meat, given to insectivorous birds as a regular article of diet, is apt to scour them badly. A very little now and again may be beneficial, by acting as a mild purgative; and if for weeks together I am unable to get either fur or feather for my Jays, and consequently think it well to mince up a little raw beef for them, I generally give my other soft-food eaters a taste, but not otherwise.

Of course a roomy cage and daily bath are necessary to the health and condition of Shamas; without both they soon become ragged, dirty, and unhealthy, are a misery to themselves, and give no satisfaction to their owner. The man who cannot accommodate one of these delightful birds with a 2 ft. long cage has no business to try to keep it, unless he likes to leave the door open and let the bird please itself as to whether it will roost inside or out. My bird on one occasion had his door left open accidentally for hours, but never took the trouble to leave the cage.

BLUEBIRDS (*Sialia*).

COMMON BLUEBIRD OR BLUE ROBIN (*Sialia sialis*).

The colour of the cock Blue Robin above is bright lazuline blue, including the greater part of the wings and the tail; the cheeks are duller; the under parts are bright reddish chocolate, with the centre of the abdomen, vent, and under tail-coverts white; tail below bluish grey; tips of flights above blackish, those of inner secondaries fringed with brown; tail feathers above slightly blackish at the tips; bill and feet black. The hen is duller, and tinged with brown on the head and beak. The young bird has the head and beak of a brownish ash colour, the feathers partly streaked with white; under parts mostly white, but the throat and breast greyish, streaked and spotted with a deeper shade. The young bird attains its adult plumage at the first moult, but the bill shows greater basal width, and is shorter than in either parent; probably that of male birds does not attain to the slenderness and length of fully adult cocks until the end of its second year.*

The Bluebird inhabits the Eastern United States, its range extending westward as far as Fort Laramie, Milk River, northward to Lake Winouipeg, and southward to Bermuda and Cuba, though it is rare in the

* This apparent inconstancy in the proportions of the bill in full-coloured skins has led scientific ornithologists to doubt the value of the form of the bill as a sexual distinction, but all broad-billed males will be found to be small, they are birds of the year.

latter island. It is generally seen paired in the spring, busily turning over leaves, examining trunks or branches of trees, or posts or fences, in search of insects, especially small beetles, though it also feeds on caterpillars and winged insects of many kinds. In the autumn, when insects are scarce, it lives largely upon berries and small fruits.

The song, as already mentioned, consists of a low, soft, but not unpleasant warbling; the call-note is plaintive, and usually consists of a duplicated soft whistle.

The natural site for the nest of the Bluebird is a hole in a tree (in which respect it resembles our Robin), but it readily takes possession of a box hung up for its use by its American admirers. There is not the least trouble in getting the Bluebird to breed in captivity, a box of the eigar-box pattern, with one half of the lid cut off and the other fastened down, being preferred to any other receptacle for the eggs. In its wild state this species constructs its nest of fine grass, sedges, leaves, feathers, hair, or other soft materials loosely put together.

The number of eggs deposited varies from three to five, or even sometimes six; these are dull blue, some-



HEAD OF BLUEBIRD.

Bills of Male and Female Blackbirds.

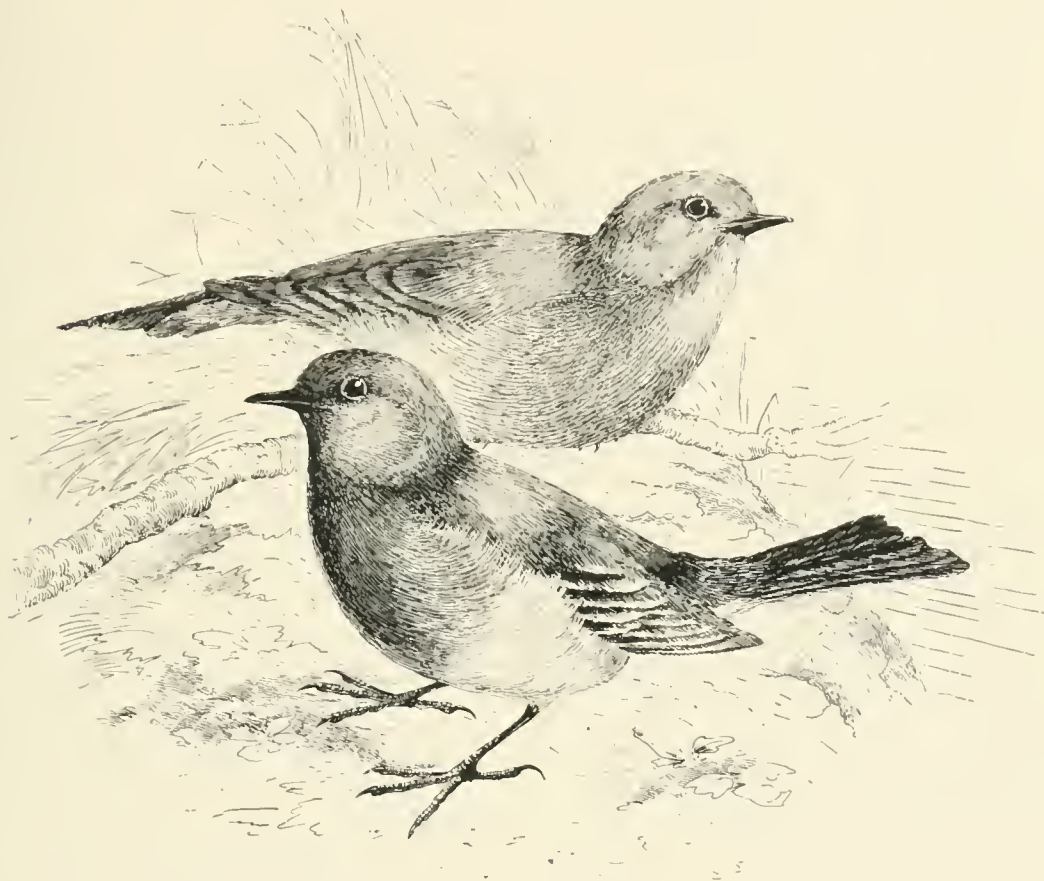
what like that of the Wheatear, but rather shorter, and deeper in colour. Three broods are naturally produced in a year, and I have had three nests of eggs in one year in an aviary. Incubation lasts thirteen days, but as the parents feed the young almost wholly on insects (which they swallow and disgorge again, whilst the young are delicate and unfeathered) the task of providing for the wants of even one youngster in an indoor aviary is no light task, as I found to my cost. On the other hand, the Rev. C. D. Farrar, of Yorkshire, who used to keep his birds in large natural open-air aviaries throughout the year, bred Blue Robins freely and without difficulty. It is curious, as Mr. Farrar also observes, that the recklessness with which the hen Bluebird leaves her eggs when sitting does not interfere with their hatching; for whenever the male bird brings her an insect she goes off her nest to swallow it, yet the eggs almost invariably hatch at the right time. I have had several youngsters partly reared, although only one example in my aviaries ever lived to attain its adult plumage.

I bred the Blue Robin in June, 1890, and published the following account in *The Zoologist* for April, 1891, pp. 154-6:—

"My Blue Robins made friends early in June, the cock bird giving every in ect he got hold of to the hen to induce her to receive his attentions; the hen was very coy, and refused his advances until the end of the first fortnight. The pairing was a noisy affair,

as the cock bird kept up an incessant shrieking noise, with his body elongated and his beak turned up to the ceiling for fully half an hour beforehand and for quite ten minutes afterwards. On Sunday, the 15th of the month, the hen spent the whole day in carrying up hay to a large deep box nailed against the wall near the ceiling, and on the surface of this she formed a saucer-shaped depression, in which shortly afterwards she laid three eggs. Whilst sitting she was fed by the cock bird, but whenever he gave her an insect she in-

slightly damped. I also gave them small earthworms mixed with garden mould in a large saucer, spiders of all sizes in quantity, flies, butterflies, moths, chrysalides, caterpillars, a few mealworms, and beetles. One point in the feeding which I have not seen recorded interested me greatly. It is well known to all breeders of both British and foreign Finches that they always feed one another and their young from the crop; they never give them food which is not partially digested, so that the young are fed not only on vegetable or insect food,



BLUEBIRDS OR BLUE ROBINS.

variably left the nest to eat it. In thirteen days the eggs hatched, and two days later two of the young birds were carried out dead, and dropped upon the floor at some distance from the nest; the third bird was safely reared, and moulted into his adult plumage towards the end of August. The staple food which I prepared for my Blue Robins, and upon which they partly fed their young one, was a mixture of crumbled stale bread (two parts), Abrahams' insectivorous birds' food (one part), prepared yolk of egg (one part), dried ants' eggs (one part), and grocers' currants (one part).*

* Grocers' currants should not be given; they may possibly have caused the death of the two young which died in the nest.

but upon half-digested and softened seeds; but it was quite a new fact to me that soft-billed birds prepared food for their young. Indeed, I know that our Robin, Blackcap, and in fact our warblers generally, Thrushes of all kinds, Starlings, and Tits, merely crush or break up the worms or insects with which they feed their young. In the case of the Tits this does not appear to be done, or, if so, only in the privacy of the nesting hole. My Bluebirds, however, generally crushed the food, and invariably swallowed it, disgorging and swallowing several times before giving it to the young bird. If half a dozen house flies were given they would frequently swallow the whole, and give them to the

young bird in one mouthful. The first time that I observed the old birds swallowing the insects put into the aviary for the benefit of the young one, I felt much annoyed, as it was not easy work to keep up a supply of insect food, even in the summer, in the suburbs of London; but presently I saw a convulsive movement in the throat, and the insects reappeared in the beaks of the parent birds, each of which in turn carried the food to the nestling. The young bird left the nest when twenty-three days old. I had been led to suppose that he would resemble the hen, but, in addition to his greatly inferior size and spotted breast, he was altogether of a far more cinereous tint. In about eight or ten days he was perfectly able to feed himself, and the parents then absolutely disregarded all his cries for food."

I found that my birds were unable to pass the winter in an outdoor aviary without shelter; two small shelters were provided, which were taken possession of by the parents, but the young bird, having no snuggery, died on the night of December 9th, and upon a post-mortem examination being made it was found that his liver and spleen were covered with tubercle.

Dr. Russ in his big work on cage-birds includes certain species of what he calls wood-singers, apparently *Mniotiltidae* (a family related to our Warblers), which he says are kept as cage-birds in the United States; but it seems to me that if all birds kept in cages in their native countries are to be recorded as recognised cage-birds there will be no limit to their number; therefore, until these birds are freely imported into the British Isles, we must ignore them.

WARBLERS (*Sylviine*).

Bush-Warblers (*Cettia*).

JAPANESE BUSH-WARBLER (*Cettia cantans*).

Above dull olive-brown, below greyish white. Habitat, Southern Japan, visiting Yezzo in the summer; also Loo-Choo Islands.

Seebohm says of this species:—"In its habits it evidently resembles its European representative, Cetti's Warbler, being found along the banks of streams and in brush heaps. It utters a harsh, scolding note when disturbed, and has a Wren-like habit of cocking its tail over its back. (Jouy, Proc. Un. States Nat. Mus., 1883, p. 283.)

Blakiston and Pryer state that it is a favourite cage-bird with the Japanese, who value it for its song, which is not extensive, though the few notes are sweet. (*The Ibis*, 1878, p. 237.)

This species has been exhibited in the London Zoological Gardens.

MOCKING-BIRDS (*Mimina*).

Typical Mocking-birds (*Mimus*).

COMMON MOCKING-BIRD (*Mimus polyglottus*).

This graceful bird is of about the size of an English Song Thrush, but its longer bill, legs, and tail give it more nearly the aspect of a Wagtail. Above it is ashy brown in colour, the feathers having darker centres; the under parts are white slightly tinted with brownish, excepting on the chin, and with an ashy shade across the breast; there is a pale eyebrow stripe, but the lores are dusky; the wings are dark brown, almost black, with the exception of the lesser wing-coverts, which are coloured like the back; the middle and greater coverts are tipped with white,

forming two bands; the basal portion of the primaries is white, this colour extending on the inner ones; the tail is blackish brown, with the outer feathers white, sometimes a little mottled; the second mostly white, excepting on the outer web and towards the base, the third with white terminal spot; the remainder excepting the central pair sometimes very slightly tipped with white; the bill and legs are black. The range of this species extends over North America, from about 40 degrees, southward to Mexico, and perhaps to Cuba. A warm climate and low-lying country near the sea appear to be preferred by it. The food of the Mocking-bird consists chiefly of insects in all stages, spiders, worms, etc., and in the winter of berries of the red cedar, myrtle, holly, etc.; it is very expert at catching insects on the wing. In cultivated districts it is very destructive to grapes, of which it is extremely fond, and consequently great numbers of these charming birds fall every year to the gun of the fruit-grower. The natural song of the Mocking-bird, as well as its imitative power, exceed (according to Ridgway) those of any other species, its voice being full, powerful, musical, and capable of almost endless variety of modulation. "The wild scream of the Eagle and the soft notes of the Blue-bird are repeated with exactness, and apparently with equal facility." The natural song is bold, and uttered with rapidity. The time of nidification varies, according to locality, from March to June. The nest is constructed with a basal platform of coarse sticks, frequently armed with large thorns; its height is usually five inches, its diameter eight inches, the egg cavity five inches wide, and three inches deep. The inner nest is formed of fine soft roots. The eggs number from four to six, usually of a light greenish blue, but varying in depth of colour, with yellowish brown, purple, chocolate, russet, and black-brown markings. The nest is rarely more than seven feet from the ground, and is placed either in a solitary thorn bush, a dense bramble thicket, an orange tree, or holly bush. In confinement this bird is usually fed on a mixture of potato and egg, but I give my usual mixture of breadcrumbs, biscuit, egg, ants' eggs, and "Century Food," a mealworm or two every day may be given, but caterpillars or spiders are more relished. I purchased a Mocking-bird from Mr. Abrahams early in 1892, and for nearly two years I kept him in a cage, where he got so abominably dirty that, although from time to time he sang a little, he was evidently not happy, and always looked disreputable; therefore in the spring of 1894 I turned him into an aviary with two English Starlings and a pair of half-collared Turtle Doves. In *The Feathered World* for April 5th, 1895, I gave the following account of the result:—

"An aviary is certainly the place for a Mocking-bird, but it must be borne in mind that he is essentially by nature a mischievous fellow, fond of practical jokes, and therefore a perpetual source of annoyance to all the other inhabitants of his domain. He sits quietly on a branch observant of all around him, looking not unlike a huge, dusky Wagtail. Presently, a hungry Starling or Dove flies down to the food-pan; but before it has swallowed a mouthful, silently and lightly as a flake of snow, but with the rapidity of an arrow shot from a bow, the Mocking-bird is upon him, usually scaring him away by the very suddenness of his advent.

"The flight of this bird is one of its greatest charms, it is so wonderfully easy and graceful. He seems to be able to pause in the air almost with closed wings, to turn almost head over heels without the least effort, and without a single clumsy action; but his song—well, it is only second to that of our Nightingale, not

so powerful or so plaintive, but it really is beautiful when he makes up his mind to sit down to it."

My bird began to sing properly on March 27th, 1895, and from that time forward he was one of the greatest attractions of my collection. His song was a continuous musical entertainment, consisting of parts of the songs and calls of the Song Thrush, Blackbird, Virginian Cardinal, Linnet, Tientsin Lark, Oxeye Tit, and even the distant cawing of the Rook, so charmingly commingled that the whole had a most pleasing effect upon the listener.

I was unfortunate enough to lose my first bird about 1896, and for three or four years I was without a specimen of this prince of songsters; then a lady wrote from Paris, saying that she was about to travel and wished to find a home for her pet Mocking-bird and a pied Blackbird, the former an old friend, and asking if I would have them. Of course, I gratefully accepted, as I had two large cages vacant. The Blackbird did not live long, but the Mocking-bird is still in full song, though evidently now a very old bird with terribly crippled claws; he was by no means a young bird when he came into my hands, and six or seven years make a difference when a bird is on the down-grade. This bird is a fine singer, but does not approach his predecessor for variety of execution, nor does he mimic so accurately the songs of the birds around him, but the Thrush and Blackbird are well represented in his performance. I fancy the Thrush-like commencement of a Mocking-bird's song must be natural to it. The species was bred by Mr. Farrar in 1901.

SATURNINE MOCKING BIRD (*Mimus saturninus*).

Upper surface brownish-grey, with fawn-whitish lores and eyebrow stripe; ear-coverts blackish; feathers of back with darker centres and pale margins; bend of wing white; all the wing-coverts with yellowish ashy borders; flights clear grey below; outermost tail feathers white tipped; whole under surface yellowish ash, the throat whiter; flank feathers with dark shaft streaks; bill brownish horn grey; eyes brown; feet greyish brown. According to Burmeister the male may be distinguished by a noticeable rusty yellowish tint, especially on the under surface, and much narrower, more pointed tail feathers with longer white tips. The ground colour of the female is greyer, and the form of the tail feathers more obtuse. The young bird, according to von Pelzeln, shows broad pale reddish borders to the feathers of the middle and lower back, pale rust-coloured borders to the wing-coverts, and strongly-spotted under surface. The egg is greenish, with rust-red spots, most dense at the small end, according to Burmeister. Habitat, Campos of Inner Brazil, not rare at Lagoa Santa. According to Burmeister, this species runs much on the earth, and thereby acquires quite a reddish yellow abdomen, due to the loamy dust adhering to it; the tail feathers also are usually dirty and worn. The nest is built in bushes on the Campos, and contains four to five eggs.

Fockelmann, of Hamburg, says that there are some admirable songsters among these Campos Mocking Birds, and therefore, as Dr. Russ says, it is the more to be regretted that they are so rare in the market. The present species has appeared twice in the list of our Zoological Society, but has not yet reached the Amsterdam Gardens. At a great exhibition of the Natural History Society at St. Gallen, in 1878, a single specimen was offered at the price of sixty francs.*

* Russ describes the Leaden-grey Mocking-bird (*Mimus lividus*) from Brazil, and says that it has only been brought home twice: by Prince Ferdinand of Bulgaria on his return from Brazil; and one example came also to the Amsterdam Gardens.

CAT BIRDS (*Galeoscoptes*).

AMERICAN CAT BIRD (*Galeoscoptes carolinensis*).

Upper surface slate grey; crown and nape brownish to deep black; wing coverts black brown with leaden grey borders, a large white patch on the wings; tail feathers black, the two outermost white-bordered at the tips or wholly white, the second pair usually white-spotted on both sides; body below clear ash grey, the feathers of the sides tipped with leaden grey; throat clear grey or whitish; under tail coverts bright chestnut brown; bill black; eyes dark brown to yellow; feet greenish to blackish brown. Female rather smaller, the white patch on the underside of the wing smaller and duller, and the white on the outer tail feathers more restricted. Young distinctly brown grey above, below with dark spots. Habitat, Northern States of North America, from the Atlantic to the Pacific, but commonest in the Eastern States; it ranges northwards into Canada and south-westwards to Texas.

In his work on the "Land Birds of California" (1870), speaking of this species as common on the Columbia river, J. G. Cooper says:—"There, as elsewhere, it inhabits low thickets or detached bushes, making its nest of strips of bark, twigs, roots, and such odd scraps as bits of rag, snake skin, newspaper, etc. The eggs are four or five, and of a deep emerald green, without spots. Their food consists of insects, worms, fruits, and berries. The ordinary call note resembles the mew of a cat, but it has a very agreeable song, in some respects imitating the notes of other birds."

Dr. Russ fills page after page with descriptions of this bird and its song, but the above gives all necessary information as to its wild life.

In *The Agricultural Magazine*, 1st series, Vol. 8, pp. 226-8 and 285-7, the Rev. C. D. Farrar has given an account of his success in breeding Cat Birds in captivity:—"An old Blackbird's nest was pulled to pieces, and with these materials the hen built in a bush. The nest was beautifully constructed in three days, and three eggs were laid (which Mr. Farrar describes as exactly resembling those of the Hedge Sparrow in colour); the eggs began to hatch in about twelve days, but the young of that nest all died. About a week later the hen repaired the nest, and was soon laying again; three eggs were deposited, of which two were hatched and were successfully reared. They left the nest when about thirteen days' old full fledged, excepting for the lack of tails." Mr. Farrar says they can only be reared upon living insect food; he does not say whether he tried the parents with earthworms; but judging from my experience of the various Thrushes, both wild and in captivity, I should imagine that these would have been acceptable.

MOCK-THRUSHES.

BROWN MOCK-THRUSH (*Iarporhynchus rufus*).

Male above yellowish to clear brownish red; head and sides of neck clear reddish yellow; lores and eyebrow-stripe deeper yellowish red; a moustachial stripe from the lower mandible formed of the characteristic Thrush-like triangular spots; wings rust-red, with one darker and two lighter transverse bands; flights brown, with darker margins to the inner webs; middle and greater coverts with the outer portions brownish black, and a terminal yellowish white spot (forming the two pale bands); under wing-coverts reddish brown; tail-feathers washed with the same colour, but tipped with whitish;

a spot on lower mandible; throat, middle of abdomen and under tail-coverts white; remainder of under surface more reddish; throat, breast, and sides with dark brown shaft-spots; bill black, under-mandible paler; eyes brilliant yellow; feet dull flesh-coloured. The female is generally of a duller colour. Young birds resembling the old, but frequently with darker streaking on the back. Habitat, Eastern North America to Missouri; and, according to Nehrling, from the Atlantic Ocean to the Rocky Mountains.

Though an inhabitant of dense forests, this bird is said to be nervous of mankind; it delights in woods with thick undergrowth, amongst which it seeks for food upon the ground. It rarely flies to the top of high trees to sing, like many other Thrushes, but seems to prefer open bush. It is chiefly insectivorous, but at times feeds on berries, wild cherries and the like.

Not being a gregarious species, the Brown Mock-Thrush or "Thrasher," as it is sometimes called, is usually met with singly or in pairs, though occasionally in small flocks (perhaps family parties).

At the beginning of October it migrates southwards in this fashion to the southern States bounding the Gulf of Mexico. In Texas, especially, it passes the winter in considerable numbers. Its nesting season begins towards the end of May, the site for the nest being generally some thorny bush; both sexes assist in the construction, which occupies about four or five days. It is generally placed upon a foundation of coarse twigs, stalks, and fibres, or a heap of dead leaves, and is constructed of grasses, stalks, bents and leaves mixed with clay, and lined with finer grasses. The clutch consists of four, sometimes five, eggs, which are incubated by the hen alone for from thirteen to fourteen days, the cock keeping guard.

The song of this species is highly praised, and great trouble has been taken to render it into words. Dr. Russ has about three lines devoted to part of the song; but it seems to me that in the case of a Mocking Bird, the song of which must necessarily vary considerably in individuals, it is of little use to write down the utterances of a single specimen. It is often heard from fairly high up in a tree, or even from the top of a telegraph post, sitting perfectly still without changing position or indulging in the marvellous leaps and movements characteristic of the ordinary Mocking Bird or Cat Bird.

This is a rarely imported species, but the German dealers, Schöbel and Reiche, have occasionally received single examples. It has found its way to our Zoological Gardens, to those of Amsterdam, and to the Berlin Aquarium. Captain Beelitz, of Leipzig, and Dr. Golz have also kept specimens in cages.

Respecting the White-eyed Mock-Thrush (*Cichlherminia densirostris*), a specimen of which was presented to our London Zoological Gardens in 1885, I think I need take no notice; it is so rare as a cage-bird that even Dr. Russ (who mentions many species which have not yet come to hand, but which he thinks likely to be imported) takes no notice whatever of it. It inhabits the Antilles.

Liethrix and *Mesia*, which, to my mind, show distinct indications of relationship to the Accentors (*Accentorina*), are referred in the Zoological Society's list to the Tits (*Paridae*); in the British Museum "Catalogue of Birds" they do not stand very far from *Accentor*, being only separated by one small genus. I shall therefore commence the next group with *Liethrix*.

CHAPTER III.

TIT-LIKE BIRDS (*Paridae*).

Accentorine Tits (*Liethrixinae*)*

THE PEKIN NIGHTINGALE (*Liethrix luteus*).

The Red-billed *Liethrix* is not only one of the most beautiful, most lively, and yet most confiding of cage-birds, but is unquestionably one of the finest of foreign songsters. Those who speak disparagingly of the musical capacity of *Liethrix* have certainly never heard a good one; perhaps have never heard anything



HEAD AND BILLS OF PEKIN NIGHTINGALE.

beyond the short phrase which is the male bird's answer to the female call-note. I have had altogether some thirty-eight to forty, so that I am in a position to speak authoritatively on this point.

The general colour of the upper surface in this bird is olivaceous-green; the forehead and crown are tinged with yellow, and the longer tail-coverts are tipped with white; the middle pair of tail-feathers and the outer webs of the remainder are black, the inner webs brown; primaries edged with yellow, which in all but the two outermost ones is replaced by vermillion towards the base; secondaries glistening blue-black, with a patch of saffron-yellow near the base of the outer web of each; lores and space inclosing eye form an elliptical yellow patch, in young birds this patch is only represented by a greyish zone round the eye; ear-coverts silver-grey; a moustachial streak, blackish at the base, but shading into smoky olivaceous, and expanding on each side of the throat; chin and throat bright golden-yellow, deepening into orange on the front of the breast; remainder of under parts with the centre yellowish, fading to whitish, and becoming pure white on the under tail-coverts; the sides ash-grey, washed on the breast with olivaceous. The bill in young birds is orange-ochreous, but in adults is coral-red, sometimes blackish at base of upper mandible, and yellowish round the edges of the subterminal notch; the feet flesh coloured or rose-reddish; the iris brown.

I have always found the female of this species very difficult to distinguish from the male, owing to the great variation which exists in different individuals of that sex; the differences which I gave in "Foreign Bird-Keeping," p. 12, for the most part do not hold good with the larger and more brightly-coloured hens. Of course, a bird with gravel-red instead of vermillion on the outer edge of the primaries, with pale yellow chin and throat and duller bill, is sure to be a female; but there are females nearly, if not quite, as large as

* According to some ornithologists these birds belong to the *Crateropodidae*.



SILVER-EARED MESIAS.

males, which cannot be distinguished by these characteristics. The only difference which appears to be constant, apart from the song, is the bright yellow elliptical patch enclosing the eye of the male, which in the female is either ashy or creamy-whitish. This seems to me likely to be the character by which the birds recognise one another's sex; but the male always answers the monotonous call-note of the female by a short song of from seven to nine syllables.

The *Liothrix* inhabits the Himalayas at an elevation of from 5,000 to 8,000 ft., and from Simla it passes eastward to China. With such a range the trivial name *Pekin Nightingale* conveys a false impression; but it is in such general use that it is of little use to protest against it. In its native haunts this species usually frequents dense thickets and the underwood which springs up in the cleared parts of the forest, and is usually seen in parties of five or six individuals. It is naturally a shy bird, usually avoiding observation, and therefore the facility with which it becomes tame and learns to fly to its owner for mealworms in the aviary is the more remarkable. Its food consists of fruits, berries, seeds, and insects. According to scientific writers, its call note is a chattering sound, but this is a mistake. The chattering is a sign of displeasure either at being disturbed or at missing some favourite article of food. A net introduced into the aviary, or a new bird, the failure to give a mealworm or spider when it was expected, will all produce this form of bad language, in which both sexes will join with equal vigour. Naturally, this bird builds a cup-shaped nest of moss and dry leaves, bound together with grass and roots, in some leafy bush at no great height from the ground. From descriptions given in Hume's "Nests and Eggs of Indian Birds," it would seem that the nest is generally deep, and is fixed in a fork and attached to three or four of the slender prongs or twigs. In the aviary it will either build in a bush or a cigar nest-box. It generally lays three eggs, rarely four, of a pale green tint, spotted and otherwise marked with red, purple, and brown, and incubation lasts about thirteen days. The *Liothrix* is very fond of bathing, and therefore every facility should be provided for this healthful amusement, in which I have seen my birds indulge at short intervals throughout the day during the hot weather. With regard to food, the more variety the better, whether as a mixture or separately; bananas, oranges, or seed will be eaten greedily, boiled rice sparingly, potato, dry bread-crumbs, egg-food, and ants' eggs freely, grated carrot with less satisfaction, insects greedily. Mr. Keulemans, who bred this species in a conservatory, told me that as soon as the young left the nest there was a general battle, in which both old and young pecked out one another's eyes, so that the majority were maimed. This seems a curious thing, considering that many pairs may be frequently seen living in amity; neither Dr. Russ nor Herr Wiener appear to have had such an experience.

Once or twice my birds have carried a little nesting material into a box, but have made no further attempt at breeding. As a rule, however, I have not found the hens anything like so long-lived as the cocks, although two which I still possess as I write have already been in my possession for about seven years, and look like living some time yet. My first male *Pekin Nightingale* died early in 1898, having been in my possession for upwards of ten years. I lost my second male on the opening day of the Crystal Palace Bird Show in the same year. He was in perfect plumage, and singing loudly to within half-an-hour of his death, which

resulted from disease of the heart, all his other organs being perfectly healthy. Without exception, this was the finest songster which I ever possessed, its ringing flute-like notes being clearly audible all over the house. One of this bird's phrases sounded exactly like "Here's your ginger-beer here, Teddy; so it is, Gerty"; but more frequently he stopped at "so it is," and sometimes he rattled on into a much longer but untranslatable song. By repeating the words to this bird I could almost always get him to sing them, much to the amusement and delight of visitors. He, however, had another more varied, fuller, and longer song, which I could only induce him to sing when I wanted it by repeating the monotonous and almost metallic hen-call in the usual high note, and then whistling it a little lower.

The song of the *Liothrix* more nearly resembles that of the Blackcap than of any other British bird, but it is more rapid, and frequently quite as loud as that of the Blackbird. When in full form, this bird will sing almost incessantly for hours together; but at other times, if it hears the call of the hen, it will repeat one or other of its usual brief answers—"Choo, choo; achoo, tochoo"; or "Choo, choo; achoo, choo; choo-choo"; both of which, from the measured manner in which they are uttered, can be at once recognised as mere musical calls, utterly apart from the full joyous warbling of the species.

Under the name of *Liothrix* Dr. Russ gives descriptions of *Siva cyanuroptera*, *Mesia argenteauris*, *Minla ignitincta*, *Sittiparus castaneiceps*, *Lioparus chrysus*, and *Proparus vinipictus*, of which only the first two have been imported as cage-birds; this is catering for a future generation with a vengeance.

SILVER-EARED MESIA (*Mesia argenteauris*).

Male.—Head black; forehead, chin, and throat golden cadmium yellow; ear coverts silky-white; nape golden cadmium yellow shading into the green of the middle-back; remainder of back, wing-coverts, and greater part of inner half of wing olive-green or greenish-slate; primaries internally similar, but externally golden-cadmium, fading into clearer yellow and with a conspicuous crimson patch at the base; upper and under tail-coverts crimson; tail olive-greenish, with the lateral feathers yellow externally; breast brilliant golden yellow, continuous with that of the throat; abdomen olivaceous; bill bright yellow; feet flesh yellow; iris of eye (according to Jerdon, brown) as figured by Mr. Grönvold from living examples, yellow. The female has the forehead yellower, less orange, and the upper and under tail-coverts orange instead of crimson (as pointed out by Hodgson, but contradicted by Jerdon). Hab., "Eastern Himalayas, throughout the hills of North-Eastern Bengal and Burmah to Tenasserim." (Brit. Mus. Cat. VII., p. 643.)

The following notes on the nesting of this species are from Oates's edition of Hume's "Nests and Eggs," Vol. I., p. 160:—"According to Mr. Hodgson's notes, the Silver-eared *Mesia* breeds in the lowlands of Nepal, laying in May and June. The nest is placed in a bushy tree, between two or three thin twigs, to which it is attached. It is composed of dry bamboo and other leaves, thin grass-roots and moss, and is lined inside with fine roots. Three or four eggs are laid; one of these is figured as a broad oval, much pointed towards one end, measuring 0.8 by 0.6, having a pale green ground with a few brownish-red specks, and a close circle of spots of the same colour round the large end."

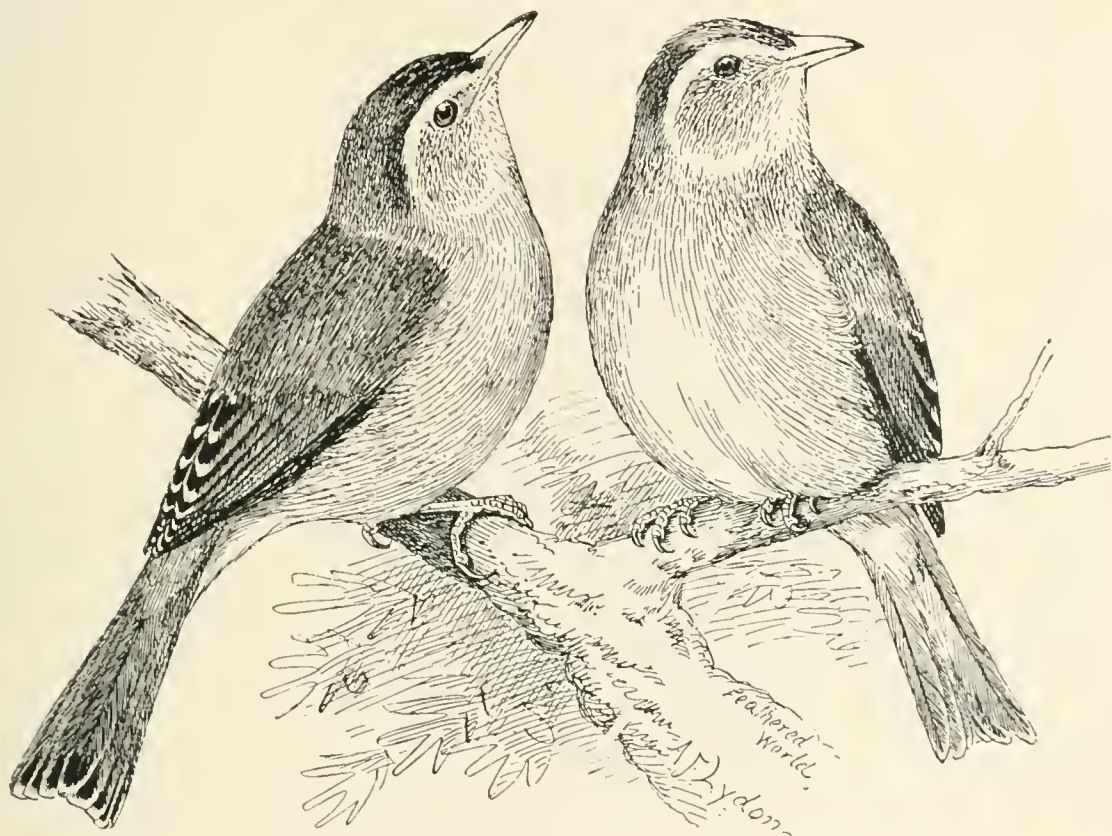
"From Sikkim, Mr. Gamble writes:—'I have taken about half a dozen nests of this bird. They closely

resemble those of *Liothrix lutea* in size and structure, and are similarly situated, but instead of having the egg-cavity lined with dark-coloured material, as that species has, all I found had light-coloured linings; such was even the case with one nest I found within three or four yards of a nest of the other species."

"The eggs are usually four in number."

"Other eggs found by Mr. Gammon correspond with those given me by Dr. Jerdon. They are as like the eggs of *L. lutea* as they can possibly be, and if there is

Phillipps's possession went to nest five times in his garden aviary, nearly, but never quite successfully rearing young. He has published a most interesting account of his experience, illustrated by a beautiful coloured plate of the two birds and an uncoloured plate of nests and egg, in *The Avicultural Magazine*, 2nd series, Vol. I., pp. 379-390, and Vol. II., pp. 36-45. The young of the first nest were fed from the crop on mealworms, small cockroaches, and wasp-grubs, and Mr. Phillipps thinks that "a garden of earwigs, woodlice, ants, etc.,



BLUE-WINGED SIVAS.

any difference, it consists in the markings of the present species being as a body smaller and more speckled than those of *L. lutea*."

"The six eggs that I have vary in length from 0.82 to 0.9, and in breadth from 0.6 to 0.65."

In its general habits, its confiding nature, its call-note and scolding-note or note of alarm, this bird is remarkably like *L. lutea*. On several occasions I watched a pair in Mr. Seth-Smith's aviaries, and was much struck by the similarity in the behaviour of the two species. Its song, however, is very inferior, consisting only of five or six notes; these are clear and musical, but rather pall upon one when frequently repeated; yet the bird is so beautiful and trustful that one can forgive it its lack of musical ability.

In 1903 a pair of Silver-eared Mesias in Mr. Reginald

would be of priceless value when such a species as the Mesia has to be reared."

A young bird which died after leaving the nest was forwarded by Mr. Phillipps to Mr. Frank Finn, who has described it as follows:—"The general hue above is smoky drab, with a well-marked black cap; the ear-coverts are silver-grey as in the adult Mesia, and the quills have light outside borderings, dirty cream-colour on the early primaries, passing into ochre yellow on the secondaries. The smoky drab colour extends on to the breast and flanks, but the throat and centre of the abdomen are dull cream-colour, the throat verging slightly on yellow. There is a slight wash of olive-green on the back of the neck. Such little of the tail-feathering as has grown is dull black like the inner webs of the quills. The under tail-coverts are dull brick-red. The

bill is dull flesh-colour, horny at the tip and gape, and the legs, feet, and claws dull flesh-coloured also. The iris has apparently been brown."

As Mr. Oates says that the young bird has the crown yellowish at first, Mr. Finn is inclined to conclude that this character is variable, but Mr. Philipps thinks it possible that the difference of colour in the young may be sexual, and this certainly seems probable.

The Silver-eared Mesia is rarely imported, and therefore commands a high price.

BLUE-WINGED SIVA (*Siva cyanuroptera*).

"Above yellowish-brown, passing to blue-grey towards the head, which is blue, and rufescent on the rump;

"This very pleasingly-plumaged *Leiothrix* is found in the Himalayas from Nepal to Bootan, and also in the hills of Assam. It is common near Darjeeling, from 3,000 to 6,000 feet, and has similar manners to the last, being found in considerable flocks, with a hurried and lively manner, flying from tree to tree, alighting about the middle, and then hopping and climbing up to the top-most branches, hunting for minute insects with a lively chirrup." ("Birds of India," Vol. II., p. 254.)

In Oates's edition of Hume's "Nests and Eggs of Indian Birds" we read:—"The Blue-winged Siva breeds, according to Mr. Hodgson's notes, in the central regions of Nepal, and in the neighbourhood of Darjeeling, in May and June. The nest is placed in



RED-SIDED TITS.

visible portion of the closed wing and tail cobalt-blue; the secondaries, tertials, and tail tipped with white, and the outer tail feathers white internally; beneath whitish, with a reddish-lake tinge, fulvescent on the flanks; under tail-coverts pure white, forehead with a few faint black streaks. Bill dusky yellow; legs fleshy; irides brown."—Jerdon.

No sexual distinction has been indicated, but that it exists seems probable from the fact that in 1877 Karl Jamrach sent Dr. Russ what he regarded as a pair; unfortunately, they arrived dead, so that the German aviculturist was unable to point out the differences (he probably returned them promptly). Jerdon observes:

trees, at no great elevation above the ground, and is wedged in where three or four slender twigs make a convenient fork. A nest taken on June 2nd was a large compact cup, measuring exteriorly 4.75 in diameter and 3.75 in height, and having a cavity 2.6 in diameter and 1.87 in depth. It was composed of fine stems of grass, dry leaves, moss, and moss-roots, bound together with pieces of creepers, roots, and vegetable fibres, and closely lined with fine grass-roots. They lay from three to four eggs, which are figured as moderately broad ovals, considerably pointed towards the small end, 0.85 in length by 0.6 in width, having a pale greenish ground pretty thickly speckled

and spotted, especially on the broader half of the egg, with a kind of brownish brick-red."

"The nests of this species are very beautiful cups, very compact and firm, sometimes wedged into a fork, but more commonly suspended between two or three twigs, or sometimes attached by one side only to a single twig. They are placed at heights of from 4 to 10 feet from the ground in the branches of slender trees, and are usually carefully concealed, places completely encircled by creepers being very frequently chosen. The chief materials of the nest are dead leaves, sometimes those of the bamboo, but more generally those of trees; but little of this is seen, as the exterior is generally coated with moss, and the interior is lined first with excessively fine grass, and then more or less thinly with black buffalo or horse hairs."

An interesting article on this species, illustrated by a coloured plate, appeared in *The Avicultural Magazine*, 1st series, Vol. VIII., pp. 243-245, from the pen of Mr. E. W. Harper, a gentleman to whom English aviculturists are indebted for a knowledge of many of the rarer Indian birds.

Mr. Harper regards the *Liotrichina* as more nearly related to the Babbler than the Tits, and in this opinion Mr. Finn agrees with him. I daresay they are right, but I am following the order of the list of the Zoological Society, which, rightly or wrongly, places them with the Tits.

True Titmice (*Parus*).

AZURE TITMICE (*Parus cyaneus*).

Male—Head, throat and under parts generally snow-white; a deep blue streak from bill through eye to nape, joining a second broader streak from nape at back of ear-coverts; upper surface beautiful azure blue, deepest on shoulders, middle of wings and tail; clear blue on middle of back and upper tail-coverts, the latter feathers with white borders; greater wing-coverts white; secondaries broadly white-tipped, primaries and tail-feathers externally white-edged; a central dark blue longitudinal streak down the breast; bill greyish horn-brown; feet leaden grey, iris dark brown. Female—Smaller and duller in colouring; top of head grey-whitish; streak from nape behind ear-coverts narrower; breast-streak much reduced or wanting; under parts less purely white, grey-bluish. Young with a greenish tint over the blue colouring, under surface dirty-white, inclining to yellowish; crown marked with a deep ash-grey circle; nape and eyebrow stripe white, band on neck grey. Hab., North-eastern Europe and North Asia. Like our British Tits, this species nests in holes in the branches of trees, more especially willows, more rarely in deserted Woodpeckers' holes; the nest, which is formed on the rotten wood, consists of the hair of hares and squirrels felted together, among which a few thin grass-stems are mingled. The clutch consists of ten or eleven eggs; the young have been known to leave the nest as early as June 11th.

The food of this Tit, like those of other species, consists of all kinds of insects, seeds, and the kernels of various berries, the fleshy part being rejected.

In the *Gefiederte Welt* for 1880 Dr. E. Schatz gives an account of two males of this lovely species which, contrary to what has been asserted, retained their bright colouring throughout a cold winter in a cage. He kept two pairs in a large aviary with numerous other birds, especially Finches and Warblers. He says that, like the other Tits, they were so fond of bathing that as fast as fresh water was placed in the pan they would be in it splashing about until they looked quite black with the moisture. Their confiding

behaviour and charming colouring rendered them a great source of pleasure to their owner.

Mr. A. Kohlschein almost induced this species to go to nest in captivity; they carried building materials into the nesting-place and then fetched them all out again; the female seemed especially anxious to breed; but, owing, as he supposes, to the proper insect-food not being available, they gave it up.

Dr. Russ says that, when first imported, this Tit is very delicate; but with careful attention in acclimatizing it, it becomes vigorous and long-lived.

RED-SIDED TITMICE (*Parus varius*).

Male—Top of head deep glossy black with a broad isabelline yellow frontal band; a narrower streak from the middle of crown to nape yellowish-white; a broad band from the bill along each side of the head bright isabelline yellow; nape-stripe black; a broad band from the bill, above the throat to nape, black; entire upper surface bluish ash-grey; flights below slightly paler grey; under wing-coverts whitish; tail below much as above; body below golden-brown, chestnut on the flanks; bill black, feet bright blue, eyes black. The female has the band at the side of the head much paler, as well as the streak on the crown and the middle of upper breast and abdomen. Hab., Japan and Corea.

In Seeböhm's "Birds of the Japanese Empire," p. 86, are the following notes on this species:—"The Japanese Tit is supposed to be only a summer visitor to Yezo, whence there is an example in the Swinhoe collection obtained by Captain Blakiston at Hakodadi in April (Swinhoe, *The Ibis*, 1874, p. 155); but it is a resident in Hondo, whence there are four examples from Yokohama in the Pryer collection. "It has occurred in February in the Korean Peninsula, but it is not known whether it breeds there or not." (Taczanowski, *Proc. Zool. Soc.*, 1887, p. 604.)

"It is a favourite cage-bird with the Japanese. Its note is described as resembling that of the Little Woodpecker. Like the other Tits it frequents the pines, but it is much less sociable and is generally seen alone or in pairs." (Jouy, *Proc. United States, Nat. Mus.*, 1883, p. 287.)

According to Russ this species has only twice been imported into Europe (but he seems to have overlooked the English Zoological Gardens); first in 1869 it reached the Zoological Gardens of Amsterdam, and then, in the spring of 1894, four pairs were received by Miss Hagenbeck of Hamburg. Of the latter, Dr. Russ secured a pair, and a second pair was purchased for the Zoological Gardens of Berlin.

Dr. Russ fed his pair upon a soft food consisting of dried ants' eggs, grated carrot, breadcrumbs, hard-boiled egg, and a little crushed hemp; upon this he says they thrive remarkably well. Although at first they would not touch any other kind of food and would not even accept mealworms, they gradually began to take many kinds of food. The kernels of the most diverse seeds were extracted, also the mealworm or some other insect—a little beetle, bluebottle fly, etc. Fruit, chopped apple as also cherries, they took no notice of; yet Dr. Russ says he has seen it pick up a cherry stone, the fruit of which had been eaten by another bird, and hammer away at it with the object of getting at the kernel; but he cannot say whether it ever succeeded in doing this; he however later observed this Tit cracking open the seed of the large sunflower.

As this pair carried a lot of nesting-material into a Hartz cage and sat therein continually, he imagined that he was going to breed the species; but one fine day they bundled the whole lot on to the floor, and so disappointed his hopes.

WAGTAILS AND ALLIES (*Motacillidae*).

PIED GRALLINA (*Grallina australis*).

Jet black; head, throat, upper breast and back glossed with blue; the first flights and tail with greenish; an eyebrow stripe and a spot on each side of the neck pure white; wings with a longitudinal white stripe; second primary white tipped; rump, upper tail-coverts and under wing-coverts white; tail white at base and tip; lower breast, sides, abdomen, and under tail-coverts white; bill yellowish white; feet black; iris straw yellow. The female may be distinguished by its white forehead, lores, and chin. Hab., Australia.

Speaking of examples of this species Gould observes:—"Those that came under my observation in New South Wales frequented alluvial flats, sides of creeks and rivulets.

"Few of the Australian birds are more attractive or more elegant and graceful in (their) actions, and these, combined with its tame and familiar disposition, must ever obtain for it the friendship and protection of the settlers, whose verandahs and housetops it constantly visits, running along the latter like the Pied Wagtail of our own island. Gilbert states that in Western Australia he observed it congregated in large families on the banks and muddy flats of the lakes around Perth, while in the interior he only met with it in pairs, or at most in small groups of not more than four or five together; he further observes, that at Port Essington, on the north coast, it would seem to be only an occasional visitant, for on his arrival there in July it was tolerably abundant round the lakes and swamps, but from the setting in of the rainy season in November to his leaving that part of the country in the following March not an individual was to be seen; it is evident therefore that the bird removes from one locality to another according to the season and the more or less abundance of its peculiar food. I believe it feeds solely upon insects and their larvæ, particularly grasshoppers and coleoptera.

"The flight of the Pied Grallina is very peculiar—unlike that of any other Australian bird that came under my notice—and is performed in a straight line with a heavy flapping motion of the wings.

"Its natural note is a peculiarly shrill whining whistle often repeated. It breeds in October and November.

"The nest is from 5in. to 6in. in breadth, and 3in. in depth, and is formed of soft mud, which, soon becoming hard and solid upon exposure to the atmosphere, has precisely the appearance of a massive clay-coloured earthenware vessel; and as if to attract notice, this singular structure is generally placed on some bare horizontal branch, often on the one most exposed to view, sometimes overhanging water, and at others in the open forest. The colour of the nest varies with that of the material of which it is formed; sometimes the clay or mud is sufficiently tenacious to be used without any other material; in those situations where no mud or clay is to be obtained, it is constructed of black or brown mould; but the bird, appearing to be aware that this substance will not hold together for want of the adhesive quality of the clay, mixes with it a great quantity of dried grass, stalks, etc., and thus forms a firm and hard exterior, the inside of which is slightly lined with dried grasses and a few feathers. The eggs differ considerably in colour and in shape, some being extremely lengthened, while others bear a relative proportion; the ground-colour of some is a beautiful pearl white, of others a very pale buff; their markings also differ considerably in form and disposition, being

in some instances wholly confined to the larger end, in others distributed over the whole of the surface, but always inclined to form a zone at the larger end; in some these markings are of a deep chestnut-red, in others light red, intermingled with large clouded spots of grey appearing as if beneath the surface of the shell. The eggs are generally four, but sometimes only two in number; their average length is one inch and three lines, and their breadth nine lines."

A pair of these graceful birds reached our Zoological Gardens in 1863; but for some reason or other they seem to be rarely imported.

CHAPTER IV.

BULBULS (*Pycnonotidae*).

These birds have always been great favourites of mine; but when I first took up the study of foreign birds they were always so expensive that I hesitated to purchase them. Eventually, I had one given to me, and was much delighted with its tameness, and the ease with which it could be kept and fed; indeed, I received so much satisfaction from the study of this bird, that when a specimen of another species was



HEAD OF RED-VENTED BULBUL

offered to me, at what I should now consider a very high price, I did not hesitate to purchase it. Subsequently I bought a pair of a third species for just a third of the cost of my second Bulbul.

Bulbuls are naturally chiefly frugivorous and insectivorous, but in confinement they readily take to the usual soft food mixtures, and will even live for a considerable time upon stale breadcrumbs, egg, and grated carrot, with a little fruit and chopped lettuce or rape seedlings for a change; but to keep them in full health and song plenty of fruit daily is a necessity. Each bird will consume daily a quarter of an orange and an inch of banana or the equivalent in other soft fruit, such as pear, sweet apple, strawberries, ripe figs, or something of that kind. I have not found them at all eager for grapes—fruit in which some insectivorous birds greatly delight.

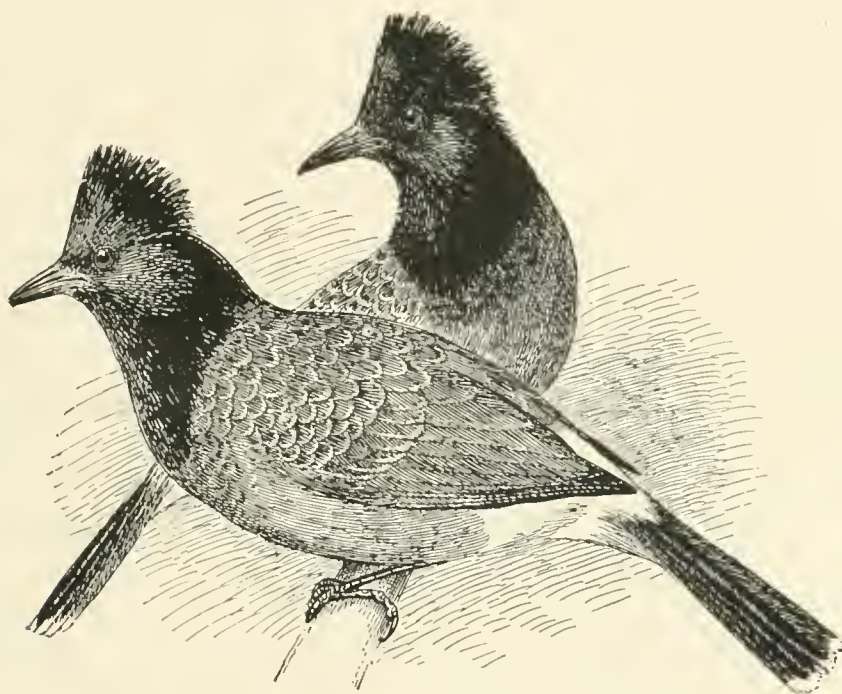
BLACK BULBUL (*Pycnonotus pygæus*).

Also called the "Bengal Red-vented Bulbul"; it is, in fact, only one of the local races of the Red-vented species; these forms, though kept distinct in scientific works, are admitted to pass one into the other. In the present form the head, nape and back of neck, the chin, throat, and breast are glossy black; the ear-coverts

rich glossy brown; from the back of neck dark smoky brown, edged with ashy, which is the colour of the rump; upper tail-coverts white; tail brownish black, tipped with white excepting the two central feathers; wings coloured like the back; the shoulders and wing-coverts edged with whitish, below from the breast backwards dark brown edged with ashy and merging into ash colour on the lower abdomen; vent and under tail-coverts rich crimson; bill and legs black; iris of eye brown; length 8½ in. The Black Bulbul inhabits "the lower ranges of the Himalayas from Kumaon to the head of the Assam valley, Oudh, Northern Behar, Bengal east of the longitude of Burdwan, Assam and its hill ranges, Dacca, Cachar, Tipperah," and has been seen from Manipur.—Oates. It breeds from April

a common pet in India, being taught by its masters to fetch and carry, and also (I am sorry to say) to fight. In Oates's edition of Hume's "Nests and Eggs" it is stated that large sums are lost at times on these combats. The young women in India are in the habit of wearing a wafer on the forehead, between the eyes; it is called a *tika* (pronounced *teeka*) and is either red or white, according to the caste of the wearer; but it is only an ornament, or beauty spot. The youth of India amuse themselves by pretending to throw at the face of some passing maiden, and a Bulbul, being released at the same moment, flies at the *tika*, picks it off the forehead of the wearer and brings it to its master, who much enjoys the girl's discomfiture.

I have never had this form of Red-vented Bulbul,



RED-VENTED BULBULS.

to June. Its nest is very compact, and forms a rather deep cup about 3½ in. to 4 in. in diameter and 2 in. in height; it is usually placed in some thick bush, and is composed of fine grass roots, moss, dry grasses, flower-stalks (chiefly of forget-me-not), always with a few and generally with plenty of dead leaves, and here and there cobwebs and silky seed-down worked into the outer surface; sometimes a little fine grass is used as a lining, but more frequently there is no lining beyond finer roots, and these roots constitute the chief variation in the nests of this bird, being black in some and pale brown in others. The egg-cavity is often large, inasmuch as the walls of the Black Bulbul's nest, though very firm and compact, vary from half an inch to 1½ inch in thickness. The eggs are three or four in number and exhibit the same variations as in *P. hamorrhous*. The song of this Bulbul is said to be superior to that of its Madras representative, or of the White-cheeked species. It is

but I should much doubt its superiority as a songster over the Persian species.

RED-VENTED BULBUL (*Pycnonotus hamorrhous*).

Differs from the Bengalese form chiefly in the absence of the conspicuous brown ear-coverts and in the black of the occiput and nape ending abruptly, instead of passing down on to the upper part of the back.

This race ranges from Ceylon northwards to Central India, and on the western side as far north as Sindh. Although essentially a bird of the plains, it is occasionally found at considerable elevations on the Nilgiris—in fact, as high up as Ootacamund. It frequents gardens and cultivated ground, as well as low bush jungle, and is usually seen either in pairs or small communities flying briskly about in a restless and inquisitive fashion. Its principal food is fruit, but occasionally it will descend to the ground and hop a

short distance in quest of insects. It is destructive to buds, blossoms, peas, and strawberries, with other soft fruit.

The Red-vented Bulbul breeds from February to August, constructing a somewhat fragile but pretty cup-shaped nest of grass and dead leaves, in bushes, creepers, on the lower branches of trees, or on the top of a stump. The eggs, which are usually three in number, are pale rosy white, marked with reddish brown and purplish grey.

Scientists call this the "Common" or "Madras Red-vented Bulbul," but for many years it was by no means freely imported; so that my male, for which I gave 30s. early in 1892, was at that time not dear. Nevertheless, I have since had opportunities of purchasing the same species at a considerably lower rate. I have found the song of this bird infinitely inferior to that of the Persian Bulbul; it rarely amounts to a trill or scale (though, when it does, the sound is rich and pleasing), but is fragmentary and incessantly repeated, somewhat after the manner of a Song Thrush, but with the tone of a Blackbird. Three or four notes are uttered, then there is a pause, and the same notes are repeated precisely in the same manner, and so the bird goes on, perhaps for five or ten minutes; then he gets an inspiration, and changes to a different key with more rapid utterance. In short, he is as inferior to an English Thrush as a songster as the latter is to the Persian Bulbul.

For a considerable time I kept my bird in an aviary with Blue Robins; and when the latter had young he would insist on feeding them, much to the annoyance of the parents. Not only so, but he objected to the cock Blue-bird attending to their wants, and at length so nearly killed the latter that I was obliged to prevent further mischief by removing the Bulbul to the adjoining aviary. He died in November, 1895, after having been about three years and nine months in my possession.

The sexes of this, and in fact all of the Bulbuls, can be readily distinguished by comparing the bills in profile; that of the male is always shorter, deeper, and of course with more arched culmen (ridge) than that of the female. In this character they are diametrically opposed to the true Thrushes, in which the short stout bill is always present in the female and the longer and more slender one in the male.

BLACK-CAPPED BULBUL (*Pycnonotus atricapillus*).

Above pale ashy-brown, with lighter edges to the feathers, excepting on the lower back; rump and upper tail-coverts sordid white, the latter tipped more or less with pale brown, the longest wholly of this colour; tail-feathers black-brown, increasingly tipped with white from centre of tail, the outermost with pale brown bases; wings brown, the feathers edged with ashy-brown; crest and nape black; ear-coverts ashy-white extending on to sides of neck, remainder of head, including upper throat, black; under surface pale ashy-brown, deeper on breast and sides; under tail-coverts crimson; under wing-coverts and axillaries yellowish-brown; flights below yellowish along edge of outer webs; bill and feet black; iris brown. Hab., Southern China, extending to Fokien and Ningpo; also the hills of Burma and Tenasserim.

This is another representative of the Red-vented Bulbul. Speaking of it in *The Ibis* for 1892, Mr. J. D. de la Touche says that it is "fairly common on the hills near Swatow." Mr. C. B. Rickett (*The Ibis*, 1903, p. 215) observes:—"Although this species is a common resident round Amoy, it rarely occurs at Foochow"; and Mr. J. C. Kershaw, in his "List of Birds of the Quangtung Coast, China" (*The Ibis*, 1904,

p. 237) says:—"Certainly the commonest Bulbul, and perhaps the most numerous resident bird." But none of these gentlemen give us any information as to the habits of this "common" bird, and oddly enough, although a specimen reached the London Zoological Gardens in 1895, Dr. Russ makes no mention of it in his book; this is the more strange when one notes that he includes many species which have never been imported on the off-chance that they may be some day.

It is, of course, probable that the habits of this species, its nest, and its eggs, are very similar to those of the Red-vented forms of India, and it is certain that its treatment in captivity ought to be the same.

SYRIAN BULBUL (*Pycnonotus xanthopygus*).

The head and upper part of the neck of the Syrian Bulbul are glossy black, sharply defined; the upper surface of the body ashy dust brown, merging into amber brown on the primaries; the upper tail-coverts are also rather darker than the rest of the upper surface; the tail is amber brown, with rather paler tips to the feathers; the under surface is dull white stained with pale ashy brown on the breast and flanks; the vent and under tail-coverts are bright golden yellow; the bill and legs are black, and the iris of the eye is brown. According to Dresser this Bulbul is "only found in the south-eastern portion of the western Palearctic Region." It is very common in Palestine, where Canon Tristram met with it in all parts of the country, wherever woods or gardens existed, from Jaffa to the Jordan. This bird, though somewhat shy, is the finest songster in Palestine, and consequently has rightly earned the title of "the Palestine Nightingale." It is very hardy, and easily kept in confinement; it is not naturally gregarious in its habits, so that only a single pair should be kept in an aviary. Its nest, which is very small and neat, is usually placed in a fork, or on a lateral branch of a tree, and the outside is formed of materials to match its surroundings. The eggs, three to four in number, are usually deposited in March or April, and are white, with faint underlying purplish shell-markings, and clearly-defined chocolate crimson spots. According to Wiener, this species has been bred in captivity in Germany, but I do not see that Dr. Russ mentions this; and it is his custom, when such an event has taken place, to give a detailed account of it.

WHITE-EARED BULBUL (*Pycnonotus leucotis*).

The head of this charming bird is jet black, with the ear-coverts and back of the cheeks white; the back of the neck rich brown, narrowly banded with blackish; the upper surface of the body and wings earthy brown, the edges of the feathers paler; the wings margined with pale ashy; the tail brown at the base, changing to black beyond the coverts and tipped with white; under surface whitish-yellow; the vent and under tail-coverts rich saffron-yellow; the legs and bill black, the iris of the eye brown. Mr. W. T. Blanford, in his "Birds of Eastern Persia," says of this bird:—"The only representative in Persia of the great tropical family of *Pycnonotidae*; it abounds in Baluchistan and the southernmost portion of the Persian highlands, but not on the plateau far north of Shiraz. It, however, extends far into Mesopotamia, and I have seen caged specimens at Karachi, said to have been brought from Baghdad. Birds from Mesopotamia are highly esteemed in Sindh, because they sing far more readily and finely in confinement than those captured in Western India; whether this is due to greater natural powers of song in the birds themselves, or to greater skill in taming them among the bird-catchers of the Tigris and Euphrates valley I cannot say, but I can vouch for the fact. Eastward it appears to be chiefly

confined to the great desert tract of North-West India, the climate of which much resembles that of Southern Persia." Mr. Blanford goes on to say that he can see no constant difference between the specimens of Persia and India, excepting that the former may perhaps run a little larger.

The White-eared Bulbul breeds from May to August; in the Punjab from July to August, but in Sindh earlier. Its nest is usually built at a height of from four to six feet from the ground in some thorny bush—acacia, catachu, or jhand (*Prosopis spiciigna*); it prefers the immediate neighbourhood of water, probably from the fact that it is very fond of a bath. The nest is a neatly constructed, but rather slender, cup-shaped structure, formed of very fine dry twigs of some herbaceous plant, mixed with vegetable fibre resembling tow, and scantily lined with very fine grass roots; the cavity measures from 2½ in. to 3 in. in diameter, and a little over an inch in depth. The eggs, which are usually three (rarely four) in number, are of an ovate pear-shape, pinky white much dotted with claret-red, which frequently forms a zone or cap at the larger end.

At the Crystal Palace Show for 1887 Mr. J. M. C. Johnston (brother of the African explorer) exhibited a true Persian Bulbul, which he had picked up for a few shillings at a small bird-shop in London. About a month later he gave this bird to me, and for three years the bird was in perfect health, and the delight of everybody who saw him; then he had an attack of curvey, which, though it did not affect his temper or stop his song, temporarily much detracted from his beauty. This disease apparently disappeared under change of diet, more fruit, chopped lettuce, etc., being given to him, and for two years he regained his trim and pleasing plumage; then the disease reappeared and gradually increased in spite of all treatment, and though the bird remained cheerful and confiding to the last, he died about the end of the year 1892.

This Bulbul was so tame that he would reach over my hand to eat from his pan before I had put it down. The sight of a spider would make him dance and sing with delight, as also would the offer of a mealworm; moreover, when he got the latter in his beak he would hop about, warbling and cocking his head knowingly for some time before he swallowed it. Candied fruit, but especially apricot, was much appreciated, as also all kinds of ripe fruit when in season. I fear, however, I did not give enough of this, his natural food, and that had I treated him more liberally I might (instead of having his friendship for only a little over five years) have kept him much longer. As a staple diet he had my regular mixture, to which I added daily a few grocers' currants—a fruit which is unsuitable for all birds, but especially for a Bulbul.

I regard this as the pick of all the true Bulbuls for intelligence, docility, tameness, and vocal excellence; but to secure a good singer a true Persian bird must be selected, not one of the much smaller race inhabiting North-Western India. About 1891 a body of the Indian race was sent to me by Mr. Abrahams for comparison with my living Persian example, and I was astonished at the difference in size; the Indian bird seemed but little larger than a Great Tit, which (excepting in its crest) it much resembles.

P. leucotis is the Bulbul of poetry, the far-famed "Persian Nightingale," and he has a far greater claim to the title than the "Virginian Nightingale," his notes being particularly sweet and soothing.

The song of the Persian Bulbul consists of liquid water-bubble whistling, and reminds one strongly of some parts of our Nightingale's melody. The same phrase is sometimes repeated over and over for hours, and then abruptly altered, but it is always pretty and

cheerful; indeed, even the scolding note is not altogether displeasing. The bird also is so full of music that any sound, whether of organ, piano, or the note of another bird will start him off.

YELLOW-VENTED BULBUL (*Pycnonotus aurigaster*).

Above brown, the feathers, excepting on the lower back, with ashy edges; rump and upper tail-coverts white; the longer coverts slightly brownish; greater coverts and flights with paler brown edges; tail feathers dark brown, paler towards base and tipped with dull white; head black, the back of neck ashy grey with dark brown centres to feathers; ear-coverts and lower throat white; remainder of under surface ashy-brown, becoming white at centre of abdomen and bright yellow on vent and under tail-coverts; under wing-coverts and axillaries pale ashy-brown edged with pale brownish; bill and feet black; eyes brown or dark red. The female appears to be slightly larger than the male, and doubtless she has a longer and more slender bill. The young bird is paler in all its colours than the adult. Hab., Java.

According to H. A. Bernstein's account of this bird in Java, "Without question this is one of the commonest birds in the built upon and cultivated districts of Java. At any rate, I have found it everywhere widely distributed in different parts of the island, in the east as in the west, near the coast as well as in the hill-country of the interior. Even in the coffee plantations I have very frequently met with it, but never in dense primeval forest or high mountains. It lives gregariously, and excepting at the pairing season mostly in small flocks, the members of which keep well together and rarely separate widely. If one member of the company notes a suspicious object, he examines it with long, extended neck, and ultimately flies away, at the same time warning his companions of the approaching danger with loud cries, and they also fly away at the alarm. In this manner they have many times disappointed me in my pursuit of a rare bird which I was trying to stalk.

"This Bulbul nests in the hedges and bushes in the vicinity of villages, and as it is so common I have been able to collect a great number of its nests. They all stand about one to two metres high above the earth, rarely higher, and never immediately on the earth. As a rule they are well and strongly built, and the inner cup especially always forms a perfectly regular hemisphere. Externally the nest consists of coarse vegetable matter, dry leaves, grass stems and the like, and in addition it is covered not infrequently with lichens and caterpillar silk. For constructing the inside the bird uses fine grass stems, and preferably the elastic fibre of the Areng palm. The number of eggs usually consists of three, rarely four. In size and colour they are very variable, so that in ten nests one can scarcely find two in which the eggs entirely agree. The egg generally is of a beautifully oval shape, yet one also finds strikingly elongated specimens, so that the length varies from 21 to 27 millimetres, whilst the greatest width is always 17 millimetres. The ground-colour is of not quite pure white, usually with a reddish tinge, upon which large and small spots are distributed, partly of a cherry and partly of a wine-red colour, which differ considerably in number, size, and depth of colour; sometimes they are distributed uniformly over the whole surface, sometimes they are situated in a great crowd at the blunt end, and there form a more or less defined cap; sometimes they stand out distinctly from the ground colour, sometimes indistinctly, sometimes pale and faded, sometimes dark and brilliant. Then one may discover clear grey or grey-brown spots among the red-brown ones; yet, although they differ so much, the

eggs possess so great a general resemblance that one can readily identify them."

Mr. F. Nicholson (*The Ibis*, 1881, p. 148) says: "The nest, though cup-shaped, like that of *P. analis*, is better constructed and more neatly woven. As with the last-named species, it is composed of slender twigs, with dead leaves interwoven to form a more solid base, and it is lined with coconut fibre."

"The eggs are similar to those of *P. analis*, being creamy white with large red spots and underlying pale grey markings; but the spots are decidedly larger than in the eggs of the latter species."

This bird first arrived at our Zoological Gardens in 1865 and 1874, and in 1878 it was received in the Amsterdam Gardens. The late Mr. Aug. F. Wiener also (according to Dr. Russ) purchased four specimens, which reached the late Mr. J. Abrahams in 1878. It is truly remarkable that so abundant a species in the villages of Java should not have been more freely imported; it would be a really nice species to breed in our outdoor aviaries. It is odd that, in his account of the imported Bulbuls in "Cassell's Cage-Birds," the late Mr. Wiener did not even refer to this species.

DUSKY BULBUL (*Pycnonotus barbatus*).

Above earth-brown; flights darker with pale edges; tail dark brown, the outer feathers faintly tipped with ashy brown; crown darker than back, as also sides of face; lores, region enclosing eye and chin blackish; under parts light ashy brown, darker on flanks and thighs; abdomen and under tail-coverts white; the latter slightly tinted with yellow; bill and feet black; iris dark brown. Female smaller than male, rather browner and duller, and doubtless with more slender bill. Young bird paler than adult, head hardly darker than back; under parts ashy whitish. Hab., North-western Africa.

In his "Birds of Tunisia," Vol. I., pp. 163-4, Mr. J. I. S. Whitaker gives the following account of this species:—"The Dusky Bulbul is not an uncommon bird in some of the wooded districts of North Tunisia, but its range in the Regency is not an extensive one, and appears to be confined strictly to the Tell country north of the Atlas."

"In Algeria and Morocco, but particularly in the latter country, the species seems to be more abundant than in Tunisia, and my collection contains a large series of specimens obtained from various districts of the Empire, some of them situated as far south as the Haha country. Mr. Meade-Waldo says it ascends to at least 7,000ft. in the moist woods of the Atlas. Apparently the southern range of the Bulbul extends considerably beyond Morocco, the species, according to some authors, occurring along the West African coast down to Senegambia, and even further south. Whether this southern form is quite the same as the typical one is not yet clearly established. According to Colonel Irbly (Orn. Strs. Gib., p. 77), the Dusky Bulbul is very plentiful in the vicinity of Tangier and Larache in North Morocco, where it frequents fruit gardens and orchards, feeding largely upon ripe oranges. Its way of eating this fruit is ingenious, for it makes a neat hole in one side of the orange, and then completely clears out the juicy contents, leaving the rind intact, except for the small aperture on one side. The same method is often resorted to by Black Rats, and I have known orange trees in Sicily completely thus denuded of their fruit by these creatures."

"In Tunisia, as above mentioned, the Dusky Bulbul occurs in the Tell districts north of the Atlas, where it is resident and breeds. In the valley of the Madjerdah it is fairly abundant, and to be met with in most of

the wild olive groves, and among the higher 'maquis' thickets on the hill-slopes, but it seldom occurs in the more lofty oak forests. At Ain-Draham and Fernana, both thickly-wooded districts, it is also to be found, as well as in the neighbourhood of Bizerta, in the extreme north-east of the Regency. The vegetation in the last-named district is almost exclusively of the 'maquis' description, but the Bulbul seems to be as much at home there as in the better wooded country further west. Orange-groves, however, which in Morocco appear to be the favourite resort of the species, are few and far between in any part of Tunisia. At certain seasons, particularly when several of these birds collect together, they are very noisy and quarrelsome, and may be heard chattering at a considerable distance; but owing to the fact of their frequenting, as a rule, thickly foliated trees and shrubs, they are not very often seen. The song of the Bulbul is decidedly pleasing, being composed of some remarkably rich and clear notes like 'tit-wot-wot-tit-tit,' which cannot fail to attract attention. The breeding season of this species is rather late, being in May and June. The bird selects a fork in a low tree or high bush as a site for its nest, which is generally composed of small roots and dry grass. The eggs, three or four in number, are of a dull white, with grey shell-markings and reddish-brown surface spots. Average measurements 24 by 18 mm."

All that Dr. Russ tells us about this species is that the late Mr. Abrahams received several specimens; he does not record the fact that a specimen was deposited at our Zoological Gardens in 1895.

THE CHINESE BULBUL (*Pycnonotus sinensis*).

Above ash-grey, washed with yellowish olive; bastard-wing, primary and greater coverts, flights and tail-feathers dark brown edged with yellowish olive; crown slightly crested black; a broad white expanding patch on each side above the eye uniting at back of head; lores pearly grey-whitish; cheeks and ear-coverts black with an oblique pearly grey-whitish patch at the back; chin and throat pure white, breast smoky-grey, faintly tinted with yellowish-olive; under parts otherwise dull white, slightly smoky at sides and on thighs; under wing-coverts and axillaries slightly yellowish. Female slightly larger than male, and of course with a more slender bill. Hab., South China and Formosa.

In *The Ibis* for 1898, pp. 365-6, Mr. J. D. D. La Touche says of this bird, as observed by him in Northern Formosa—"I procured eggs of this abundant species on 19th May and on 1st July. The former were much incubated; the latter were quite fresh, and were three in number. The ground-colour of the eggs composing this clutch is a very pale mauve, almost white, speckled with lake spots over lilac-grey underlying spots. The markings are more numerous on the large end of the eggs and form a cap. The shape is ovate. Size 0.9in. by 0.62in., 0.85in. by 0.62in., 0.83in. by 0.6in."

"A nest obtained at Hôbé is made of sword-grass flower-spikes with an inner foundation of leaves and bamboo-leaves, the primary foundation of the nest being the sword-grass flower-spikes with the down still attached. It has a lining of fine rootlets. Depth of egg-cavity 2in.; outer depth of nest 3.5in.; inner diameter about 2.6in.; outer diameter at rim 3.8in.; largest outer diameter about 5in."

"Another nest from the same locality is similar to the above, but is without the primary foundation, and the lining is of stripped sword-grass flower-spikes. The egg-cavity is rather deeper."

"Both the eggs and the nests of this Bulbul vary considerably, the former in shape, in depth of colour, and

in the size of the spots, and the latter in the material employed."

I purchased a male of this species on the 8th June, 1899, and placed it in a large flight cage, where it still remains in perfect health and plumage. About 1903 my friend Mr. Seth-Smith had two which at first he thought might be exes and hoped to be able to breed with them; he found them too aggressive to be permitted their liberty and for a time confined them in a flight, where, however, I believe they quarrelled; at any rate he eventually offered me one of these birds on the chance of its proving to be a hen, and on the 6th January, 1904, he gave it to me. I turned it into the cage with my bird, which immediately attacked it so furiously that I had to remove it to another flight-cage; shortly afterwards I heard it singing exactly in the same manner as my old bird, so that it seemed clear that both were cocks; consequently when my friend Miss Gladstone told me in 1906 that she was anxious to obtain some Bulbuls I sent off the second specimen to her.

The song of this Bulbul is short but rapid and brilliant; it sounds like a rollicking dance over high piano-notes, and I should think would be heard for a considerable distance in the open air.

Dr. Russ had a pair of this species which went to nest in 1893, but a Porto Rico Pigeon interfered with it, so that there was no result. He says that "when chasing its mate, it hops round her either on branches or the ground with highly erected crest and nape feathers, drooping wings, and fan-like tail: it indeed appears to be white headed, but then it buffs out its entire plumage so that it seems considerably larger than it actually is. Now it gets out of the way of no other bird, even though it be the largest and most powerful inhabitant of the bird-room."

WHITE-CHEEKED BULBUL (*Otocornis leucogenys*).

Above ashy-brown with a faint olive tinge; crown darker with long crest, the feathers of which have paler edges; lores and feathers round eyes black; a white streak from upper mandible to above front of eye; ear-coverts and cheeks at back white; wing-coverts edged with dull olive; flights darker, also edged with olive; upper tail-coverts washed with olive; tail-feathers dark brown, paler towards base, edged with olive, tipped with white increasingly from central feathers outwards; throat blackish-brown, this colour extending round to back of ear-coverts; breast and abdomen whitish-brown, middle of abdomen whiter; thighs ashy-brown; under tail-coverts bright yellow; under wing-coverts and axillaries ashy-brown, whiter towards edge of wing, tinged with yellow; flights brown, ashy along inner webs; bill black; feet dark plumbeous; eyes pale brown. Female probably duller and with more slender bill. Young with dark iris. Hab., Himalayas from Cashmere to Bootan, up to 5,000ft. elevation. (Sharpe.)

Jerdon observes that this species "is most abundant, in Sikhim, from about 2,500 to 5,000 feet of elevation. It feeds both on seeds, fruit, and insects. Hutton found the nest neatly made with stalks and grass, and containing three or four eggs, grey or purplish white, with specks and spots of dark purple or claret." ("Birds of India," Vol. II., p. 91.)

In Oates's edition of Hume's "Nests and Eggs of Indian Birds" we read (pp. 175-176) that it breeds from April to July, and at all heights from 3,000 to 7,000 feet. The nest is a loose, slender fabric, externally composed of fine stems of some herbaceous plant and a few blades of grass, and internally lined with very fine hair-like grass. The nests may measure externally, at most, 4in. in diameter; but the egg-cavity,

which is in proportion very large and deep, is fully 2½in. across by 1½in. deep. As I before said, the nest is usually very slightly and loosely put together, so that it is difficult to remove it without injury; but sometimes they are more substantial, and occasionally the cup is much shallower and wider than I have above described. Four is the full complement of eggs."

According to Dr. Russ this is one of the most rarely imported species; he also asserts that it has not been received either at the Amsterdam or London Zoological Gardens; but, as regards the latter, he is mistaken. There is no reason that I know of why it should not be freely imported.

RED-EARED BULBUL (*Otocornis jocosus*).

Head and crest black; the ear-coverts white, with a tuft of silky hair-like crimson feathers over the ears, and extending beyond them; the ear-coverts are bordered beneath by a narrow line of black; the upper surface is pale brown, darker on the quills and tail, especially towards the tip of the latter, which is white, with the exception of the central feathers, but only on the inner web, excepting on the outermost pair; under surface white from the chin; the sides of the breast dark brown, forming an interrupted belt.

The female is smaller than the male, more golden-brown on the back, ear-plumes shorter, and her bill is longer and more slender. Hab., Central Himalayas to Assam, and (slightly modified) throughout Burma and South China down the Malayan peninsula; also Andaman Islands. This lively Bulbul is always on the move; its flight, according to Jerdon, is "steady, but not very rapid." According to Oates, it is "more frequently seen in gardens than elsewhere"; it especially affects jungly and well-wooded districts. Its song is an agreeable chirruping warble. Like the other Bulbuls, after flying it erects its crest as it alights. It lives chiefly on fruit, but also eats a few seeds and insects; it is said to rob gardens on the Nilgiris of peas, strawberries, etc. The nest is neat, solid, cup-shaped, about 4in. in diameter, and is formed exteriorly of twigs, roots, and grass, covered with an outer layer of skeleton leaves, lichen, pieces of cloth, broad-leaved grasses or plantation bark, and compacted together with cobwebs or silk from cocoons; it is lined with hair and down, or fine roots. The nest is usually built in clumps of moong grass about two or three feet from the ground, in bushes, tangled creepers, or thickets. The eggs, which vary from two to three, or very rarely four in number, are white with a pink tinge, marked especially at the larger end with various shades of red or purplish.

I purchased a pair of this species in 1896, and turned them into a large flight-cage, where they agreed well excepting when choosing a roosting-place for the night, both sexes greatly desiring to sit next to the wires. Although the male was slightly larger, and had a far more powerful bill than the female, she always got her own way in the end.

Although the song of the male consists only of a few flute-like notes, and the species is less confiding than the Bulbuls of the genus *Pycnonotus*, the form and colouring and the restless activity of these birds are very fascinating. Unhappily, my hen only lived about six months, and the cock bird died in less than a year—on the 24th June, 1897. I suspect that I did not give them sufficient fruit.

Wiener relates ("Casell's Cage-Birds," p. 363) how a female of this species in his possession built, on several occasions, an artistic nest in a bush, laid three or four pink eggs with chocolate-coloured spots, and sat on them patiently; but as there was no cock bird with it, of course they came to nothing. He, however, con-

cludes from this fact that Bulbuls should not be difficult to breed; but, being aggressive birds, it would be unsafe to trust them in a mixed collection.

BROWN-EARED BULBUL (*Hemixus flavala*).

Crown dusky slate-grey, crested; remainder of upper surface ashy grey, wings and tail dusky; greater coverts and outer webs of secondaries margined with olive-yellow; lores and a broad moustachial streak from lower mandible black; ear-coverts silky brown; throat white; breast, sides of body and thighs ashy grey; centre of abdomen greyish white; under tail-coverts white; bill black; feet dark plumbeous; iris dark reddish-brown. No sexual difference has been described, but doubtless the female has a more slender bill than the male. Hab., Himalayas, from 3,000 to 4,000 feet, from between Simla and Mussoorie eastwards to Bootan, and apparently to the head of the Assam valley. It is also found in the Khasia hills, and the Kakhyen hills in Burmah. (Sharpe.)

According to Jerdon ("Birds of India," Vol. II., pp. 80-81), "It is not very rare near Darjeeling, at elevations of from 3,000 to 6,000 feet. It associates in small parties, feeds both on berries and insects, and has a loud warbling note."

I have found no further notes on the wild habits. It is rarely imported: Russ states that three specimens reached the London Zoological Gardens in 1877; otherwise he knows of no other arrivals of this species in the trade.

RUFIOUS-BELLIED BULBUL (*Iole macellandi*).

Head brown, somewhat crested, the shafts of the feathers buffy white; remainder of upper surface dull olive-green; ear-coverts brownish; chin and throat white, with dusky edges to the feathers; sides of neck, breast and abdomen light chestnut or cinnamon, with pale centres to the feathers; flanks washed with olive; thighs and under tail-coverts olive-yellow, as also under wing-coverts; bill blackish brown, lower mandible greyish; feet fleshy brownish; iris brownish red. No difference has been indicated between the sexes; but the young bird is said to be rather duller, and washed with rufous on the scapulars, wing-coverts and upper tail-coverts; under surface light chestnut; abdomen whitish washed with dingy olive-yellow; lores, chin, and a moustachial line dull white, with grey-brown bases to the feathers. Hab., "Hill-ranges of the Himalayas, ranging eastwards into Assam, the Khasia, Aracan, and Tipperah hills." (Sharpe.)

Jerdon says ("Birds of India," Vol. II., p. 80), "frequents high trees, lives chiefly on fruit, and has a loud cheerin' note."

In Oates's edition of Hume's "Nests and Eggs of Indian Birds" (Vol. I., pp. 168-9), we read:—"The Rufous-bellied Bulbul, according to Mr. Hodgson's notes, breeds in the central region of Nepal, and low down nearly to the Terai, from April to June. Its nest is a shallow saucer suspended between a slender horizontal fork, to the twigs of which it is firmly bound like an Oriole's with vegetable fibres and roots. It is composed of roots and dry leaves bound together with fibres, and lined with fine grass or moss-roots. The bird is said to lay four eggs, but these are neither figured nor described."

Dr. Scully writes from Nepal:—"This Bulbul is common throughout the year on the hills round the valley of Nepal, but never tenants the central woods. It is generally found in bushes and bush-trees, not in high tree forest, and is commonly seen in pairs. The breeding season appears to be May and June. A nest was taken on 6th June, which contained two fresh eggs. The nest was somewhat oval in shape, measuring 3.35 in.

in length and 2.5 in. across; the egg-cavity was about 1 in. deep in the centre, and the bottom of the nest 1.25 in. thick. It was attached to a slender fork of a tree, and was composed externally of ferns, dry leaves, roots, grass, and a little moss, bound together with fine hair-like fibres, which were wound round the prongs of the fork so as regularly to suspend the nest like an Oriole's. There was a regular lining, distinct from the body of the nest, composed of fine, long, yellowish grass-stems, and a little cobweb was spread here and there over the branches of the fork and the outside of the nest. The eggs are rather long ovals, smaller at one end, and fairly glossy; they measure 1.0 by 0.7, and 0.97 by 0.7. The ground-colour is pure pinkish white, abundantly speckled and finely spotted with reddish purple, the spots closely crowded together at the large end, but not confluent, forming in one egg a broadish zone, and in the other a cap; in the latter egg there are a few faint underlying stains of purplish inky at the large end."

Russ notes that three examples of this Bulbul arrived at our Zoological Gardens in 1877, but he appears not to have heard of any other importation of the species.

YELLOW-CROWNED BULBUL (*Trachycomus ochrocephalus*).

Above brown; the feathers greyish towards the tips and with white shaft-streaks; these become less distinct towards the lower back and almost imperceptible on the rump; the feathers of the latter tinted with yellowish olive; tail-feathers dull yellowish olive, the inner webs browner; lesser and median coverts washed with ashy grey; greater and primary coverts and flights washed externally with olive-yellow; forehead and crown deep straw yellow, changing to ashy-brown on nape and hind-neck, and with white shaft-streaks; ear-coverts brown, with whitish centres; lores black; a bare space behind the eye; the eyelid, a streak from the lores below the eye and another above the cheeks, straw-yellow; cheeks black; throat dull white; breast and sides brown, washed with ashy and with white shaft-streaks to the feathers, less distinct on the sides, which have an olive tint; centre of body below whitish-brown; thighs deep fawn-colour; under tail-coverts lighter fawn, with an olive-yellowish tinge and whitish shaft-lines; axillaries pale brown; under wing-coverts more ashy, washed with olive-yellow; flights below dusky, with pale yellow along inner webs; bill black, feet dark horn-brown; iris brown or red. The female is like the male, but smaller, and doubtless with a more slender bill. Hab., Southern Tenasserim and the Malay peninsula to Java, Sumatra, and Borneo.

Mr. C. Hose, speaking of this Bulbul as observed by him in Sarawak (*The Ibis*, 1893, p. 391), says:—"This bird is common along the rivers, and is called by the natives 'Maki Boyah' or 'Alligator Bird,' a name given to it from its supposed habit of annoying the alligator."

Beyond the fact that this species has been met with 1,000 ft. up Mount Kina Balu, I can obtain no further information respecting it. Dr. Russ does not mention it in his work, although a specimen was deposited at our Zoological Gardens in 1893.

SPOTTED-WING (*Psaroglossa spiloptera*).

Above pale leaden-grey speckled with brownish; upper tail-coverts washed with reddish-brown; flights and primary-coverts greenish black; a white spot at base of primaries; tail dark brown; chin and throat deep chestnut; some of the feathers with grey tips; remainder of under surface white washed with rufous on abdomen and flanks; bill deep horn-brown, with pale yellow edges to the mandibles, base of lower

mandible somewhat reddish; feet brown; iris white. Female above brown, with greyish centres to feathers of head and back; upper tail-coverts more rufescent; lesser and median wing-coverts brown, with a subterminal ashy bar; greater coverts with a broader bar; bastard-wing and primary-coverts blackish; flights black, edged with bronze-green; primaries with a white spot at base, inner secondaries brown; tail-feathers dark brown, slightly rufescent below; crown of head like the back; lores and feathers round eye blackish; ear-coverts blackish-brown; cheeks and under surface dull white, partly washed with rufous; throat, breast and sides of body mottled with brown; thighs dark brown; under wing-coverts centred and edged with brown, those near edge of wing entirely dark brown; axillaries brown at base; bill black, dusky yellow at gape; feet black; iris white. Hab., Himalayas from Cashmere to Sikhim, Dacca, and Assam, through Burma to Tenasserim.

Even up to 1890 this bird was associated with the Glossy Starlings, but in Oates' edition of Hume's "Nests and Eggs of Indian Birds," p. 162, we read:—"The eggs are so different in character from those of all the Starlings that doubts might necessarily arise as to whether this species is placed exactly where it ought to be by Jerdon and others. I possess at present only three eggs of this bird, which I owe to Captain Hutton. They are decidedly long ovals, much pointed towards the small end, and in shape and coloration not a little recall those of *Myiophonus temminckii*. The eggs are glossless, of a greenish or greyish-white ground, more or less profusely speckled and spotted with red, reddish brown, and dingy purple. In two of the eggs the majority of the markings are gathered into a broad irregular speckled zone round the large end. In the third egg there is just a trace of such a zone, and no markings at all elsewhere. In length they vary from 1.03 to 1.08 and in breadth from 0.68 to 0.74."

Jerdon writes of it: "It frequents the valleys about Simla and Mussooree, up to 6,000 feet, lives in small flocks of five or six; 'its note and flight,' says Hutton, 'are very much like those of *Sturnus vulgaris*, and it delights to perch on the very summit of the forest trees. I have never seen it on the ground, and its food appears to consist of berries. It nidicates in the holes of trees, lining the cavity with bits of leaves cut by itself; the eggs are usually three to five, of a delicate pale sea green, speckled with blood-like stains, which sometimes tend to form a ring near the larger end.' Dr. Adams says that it frequents rice fields, or the sides of mountain streams, and that it is shy and timid." ("Birds of India," Vol. II., pp. 336-7.)

In July, 1902, Mr. E. W. Harper, who also presented this bird to our Zoological Gardens, wrote to offer me a specimen, which reached me on August 1st. Mr. Harper informed me that he considered its affinity to the Starlings very doubtful, and this naturally incited me to try to discover, by watching its habits in captivity, what birds it most closely resembled. Mr. Harper had already pointed out that it was "a hopping bird, and did not use its mandibles as dividers after the manner of Starlings."

I fed the bird as I do other fruit-eating species, but it was very weak, and not in particularly good plumage; nevertheless, it was easy to see that it in no respect behaved like a Starling. It always flew direct to the food vessel, and immediately began to feed, piercing the fruit with slightly-opened mandibles, between which the tongue was alternately inserted and retracted; it ate very little soft food, but the whole of

the fruit supplied to it. In all these points its behaviour corresponded exactly with that of a Bulbul, and, in an article which I published in *The Avicultural Magazine* for December, 1902, I expressed the belief that its rightful place was with that group of birds.

Unhappily the bird did not gain strength, but died on September 25th; I therefore sent the body to the Natural History Museum, in order that Mr. Pyraet might study its anatomy, and thereby decide as to its natural position. I was much interested to hear that he decided in favour of its relationship to the Buleuls.

Knowing that Colonel Charles Bingham was familiar with the species in its native haunts, I asked him, without stating my own belief, what he considered the Spotted-wing to be. His reply was:—"Undoubtedly a Bulbul; it agrees with the Buleuls in almost all its actions when at liberty."

I therefore do not hesitate to place the Spotted-wing here, instead of among the Starlings.

Chloropsis.

Although this genus seems somewhat related to the Buleuls, its members are so utterly dissimilar, both in colouring and form, that I have always objected to calling them Buleuls. In general aspect they remind one of the Honeysuckers, and for this reason I proposed ("Foreign Bird-keeping," Part I, p. 17) to call them Fruit-suckers. As I then pointed out, they were formerly placed in the *Meliphagide* by Bonaparte and Gray, and were regarded by Blyth as somewhat allied to the Honeysuckers, though structurally they are much nearer to the Buleuls.

Mr. Frank Finn (*The Avicultural Magazine*, 1st ser., Vol. VIII., p. 86) proposes, three years later, that they shall be called "Harewa," a name by which they are known to the natives in India (but which to us has no meaning); meanwhile my name for these birds has caught on, and is now very generally adopted. Mr. Finn considers these birds to be a link between the true Buleuls and the Babbler.

With regard to the food for the species of *Chloropsis*, Mr. Finn says they "are very easy to keep, devouring soft fruit and insects with equal avidity, and lapping up sweetened milk-sop with great gusto."

Some years ago I knew a gentleman who spent much money in importing these birds, which he fed exactly in the manner above suggested, and speedily lost them all. The late Mr. Abrahams, who saw them with me, said that the milk-sop treatment never suited them, but that they did well upon potato and egg chopped up together, with fruit and a few mealworms.

That which suffices to keep a bird in health in India does not answer at all in this country, or we might keep half our insectivorous birds upon peameal and maggots, which (according to what Jerdon tells us) seem to be, to all intents and purposes, the staple foods for Indian insectivorous birds. In any case, a combination of milk and more or less acid fruit, does not commend itself to me as a likely food to keep a delicate bird in health, consequently I should not try it myself, particularly after seeing how speedily three or four lovely specimens of *Chloropsis* became ill, and died when thus fed.

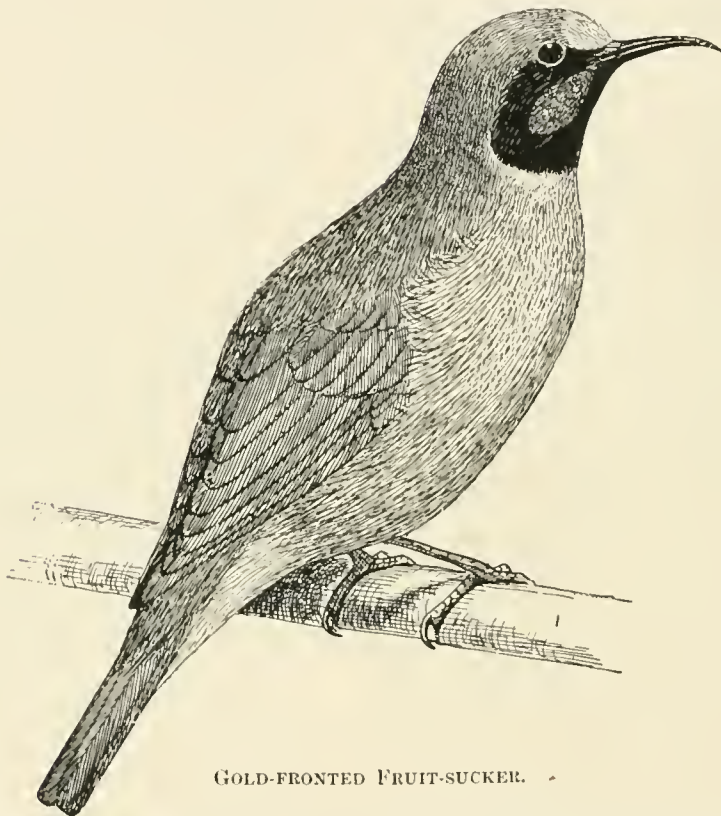
Although I have on several occasions had the chance of purchasing at least two species of *Chloropsis*, the deaths which I had heard of made me nervous of giving the necessarily high price for these lovely birds, or I should certainly have fed them precisely as I do my other fruit-eating insectivores.

GOLD-FRONTED FRUIT-SUCKER (*Chloropsis aurifrons*).

"A bird whose general hue is the brightest grass-green, relieved by a patch of shining turquoise blue on the 'shoulder' of each wing, displayed when the bird is excited. The sides of the face and the throat and fore-neck are black, and the centre of the throat, right up to the beak, rich bright blue. The forehead is fiery orange, and a yellow zone borders the black throat below, extending more or less faintly up the sides thereof. The hen is said to be less brilliant in colour, but all the birds I have seen looked much alike. Her mouth is said to be brown, while that of the cock is bluish grey, and this may afford a means of distinction. Young birds have no black or gold on the head and only a moustache of

seldom laying before the end of May or beginning of June, and its eggs may be found well on into the middle of August, as on the 16th of this month I once took two fresh eggs. The earliest date on which I have seen eggs was the 12th of May, 1891. The nest appears to be very like that of *C. jerdoni* (Hume, 'Nests and Eggs,' 2nd edit., Vol. I., p. 155), but I have seen very few of this bird's nests, and judge principally from the accounts in the book just referred to.

"Amongst other birds' nests to which it nearly approximates are those of the genus *Hemixus*, the nests of that genus differing principally in being more bulky and less tidy. It is generally placed in a semi-pendant position in a small horizontal fork, the supporting twigs



GOLD-FRONTED FRUIT-SUCKER.

blue."—Frank Finn, *l.c.* Jerdon, says that "the female has the black of the neck of smaller extent, and wants the golden forehead."* Hab., "Sub-Himalayan region from Dehra Doon to Sikhim, extending into Lower Bengal. It also occurs through Aracan, Assam, and Burmah, to Tenasserim and Cambodia."—Sharpe.

All that Jerdon says about the bird's habits is: "I procured it in Sikhim up to 4,000 feet or so. It has a sweet song, and, like the others, when caged, is quite a mocking bird."—"Birds of India," Vol. II., p. 100.

Mr. E. C. Stuart Baker (*The Ibis*, 1895, pp. 222-4) gives the following full account of the nidification of the species:—"This bird is one of the late breeders,

coming outside the sides of the nest, which does *not* hang from them as does an Oriole's. The fork chosen is usually one on the outer branches of some small tree or sapling, less often in a stout fork of some larger tree, and I have never seen a nest placed on the upper surface of a large bough in the manner that *C. jerdoni* is said sometimes to build.

"In shape the nest is a rather shallow cup, measuring in outward diameter from 3.5in. to about 4in., and in depth from 1.3in. to 1.8in., the latter depth being unusual, it generally being under 1½in. The inner portion is made of very fine twigs and coarse grass-stems, more or less mixed with moss-roots and the tendrils of convolvuli and other creepers, and sometimes with stalks of the common maiden-hair fern. The whole of this is

* I think this is incorrect, though the forehead may perhaps be paler in the female.

bound together, and also more or less interwoven, with soft grasses, dead scraps of moss, and a material which appears to be the inner bark of some tree. Further strength is added by means of cobwebs, a very large amount of this material being used in a few nests. The nest, when not in an upright fork, is very firmly fixed, although not much of the material of which the nest is composed is actually wound round the supporting twigs. I have seen one or two nests with a little live moss incorporated with the other materials, giving to them an appearance much like small neat nests of *Hypsipetis psaroides*. The eggs, which are usually two in number, sometimes three, vary in ground-colour from a pale pink, so faint as to appear white, to a rather warm pink, though eggs at all deeply tinted are the exception. Most eggs are marked with small specks and spots of a deep reddish brown, and also with irregular lines and streaks of the same colour, often so dark as to appear black if only casually examined. In most eggs the specks and spots appear to be the predominating form of markings, but in others the lines predominate, and in one egg I possessed nearly all the markings were of this character. Whatever they may be, however, they are not numerous, and are mostly confined to the larger end, where they often form a zone. Another type of egg has all the marks, of whichever kind, blurred and fainter, looking as though someone had tried to wash the eggs and by so doing caused the colour of the markings to become paler and at the same time to run, giving the egg a mottled surface, not unlike a weakly-marked egg of *Criniger flaveolus*.

"Most eggs are long in shape, some very regular ovals, and others decidedly pointed. The shell is close-grained, smooth, and delicate and in the majority of cases shows a faint gloss, seldom at all pronounced. Fifteen eggs taken in North Cachar average 0.94in. by 0.65in., but deducting the three largest, which are abnormally large, and which were brought to me by a Naga with one of the parent birds, the remaining twelve average only 0.91in. by 0.63-5in. They vary in length between 0.86in. and 1.1in., and in breadth between 0.62in. and 0.69in. This bird makes its nest in trees on the outskirts of forest or in small thickets in nullahs surrounded by grass-land, never, so far as I know, inside heavy forest."

According to Russ, this bird was first brought alive to Europe in October, 1873, and was sent to the Berlin Zoological Gardens; in 1874 it first reached the London Zoological Gardens, and in 1875 the late Mr. Wiener secured two examples; in the same year Miss Hagenbeck received several specimens. Since that date a few have from time to time reached the various dealers in London and on the Continent, and a few have been imported privately; they have always commanded tolerably high prices on account of their beauty and clear, cheerful notes.

MALABAR FRUIT-SUCKER (*Chloropsis malabarica*).

The cock bird is deep grass-green; the face, enclosing the eye, the chin, and throat, velvety black; a shining hyacinth-blue stripe on the cheek; forehead rich golden, merging into the green of the crown; wings with a bright turquoise-blue shoulder patch and a trace of the same on the margin, followed by a streak of hyacinth blue; inner webs of quills brown, those of the secondaries suffused with green towards the tips; under surface of tail greenish grey; bill blackish, legs slaty-bluish; iris of eye brown. The hen is somewhat smaller, has a green forehead, its throat-patch and cheek-stripe are more contracted, and its bill is less black. Hab., Southern and Central India and Ceylon, but rarer

in that island than in India. In its wild state this beautiful bird is usually seen in the more open parts of the forest, on the highest and the lateral branches of moderately sized trees, or at the outskirts of "patna" woods and the jungle surrounding tanks; it is usually met with in small flocks. It hops and flies actively from branch to branch, uttering its shrill piping note as it seeks for insects; it also eats a good deal of fruit, but seems to prefer the former diet. Its nest is firmly suspended by silky fibre between the fork of a bough; this fibre also forms part of the outside of the nest, which is lined with dried bents and hairs; the eggs are elongated, creamy white, spotted, blotched and lined with light pinky brown, purplish or blackish markings. Herr Wiener speaks highly of the song of this bird; on the other hand, Bourdillon says, "The male makes an attempt to sing, uttering a few notes something like those of the Bronzed Drongo," and Captain Legge adds that it "gives vent to a series of chirps, which, combined, make up a short little warble." I have heard it sing charmingly; the tone certainly reminds one of that of the Drones.

Of late years this beautiful bird has been much more freely imported than formerly; therefore its price has become more reasonable, but it is still by no means a cheap bird.

The female of this Green Fruit-sucker is rarely imported; but about the beginning of 1897 (if my memory does not deceive me) my friend Mr. James Housden, of Sydenham, had three or four examples of the so-called "Green Bulbul" brought over for him. It is quite likely that these were examples of *Chloropsis aurifrons* and that an example which I then supposed might be a female of *C. jerdoni* was a young bird in which the black of the throat was undeveloped: the two species were long confounded by aviculturists.

To keep this bird in health in confinement a certain number of insects or their larvæ are necessary. Where other less stimulating forms of insect life cannot be obtained, mealworms will answer the purpose, provided that the bird will accept them. Ripe oranges, split sweet-water grapes, or banana should always be in the cage, or, at any rate, some form of sweet ripe fruit, and as an addition to the diet I should recommend egg chopped up with potato, as well as some good insectivorous food, mixed with twice its bulk of breadcrumbs and slightly damped.

BLUE-WINGED FRUIT-SUCKER (*Chloropsis hardwickii*).

Dr. Jerdon gives the following account of the bird:—"Male above green; the head and neck tinged with yellowish, and a brilliant smalt-blue moustachial streak; shoulder of the wings verdigris blue; wings and tail fine violet or purple; throat and fore-neck black, passing into glossy dark purple on the breast; abdomen rich orange saffron.

"Females want the black neck and throat; the moustachial streak is less vivid, and the lower parts are more mixed with green.

"Bill black; legs plumbeous; irides light brown. Length, 8 inches; extent, 12; wing, 3½; tail, 3; bill at front, 11-16; tarsus, ¾.

"This beautiful bird is found in the south-east Himalayas, from Nepal to Bootan, spreading south to the hill ranges of Assam, Sylhet, and Arrakan. In Sikhim I found it from 2,000 feet upwards, most common about 4,000 feet. It has a fine song and the usual habits of the genus."

Mr. E. C. Stuart Baker (*The Ibis*, 1895, p. 224) says: "There is hardly anything to say about the nidification of this species which I have not already said of *C.*

aurifrons. I have seen very few nests, and of these it can only be remarked that two were deeper than any I have seen of that bird, one measuring over 1.8in. and the other 2.05in. It builds in the same sort of position also, but selects higher trees, and I have not taken any nest below 25ft., and one or two from very much more lofty sites, whereas *C. aurifrons* seems to prefer a height of some 12ft. to 20ft. I do not remember seeing any nest of this *Chloropsis* which contained, amongst the materials of which it was composed, any green moss. Both birds breed during much the same period. The few eggs I have seen of this handsome *Chloropsis* could not possibly be distinguished from those of *C. aurifrons*, and differ from those of *C. jerdoni* only in their much greater size, averaging, as

they do, 0.9lin. by 0.6lin. I have one egg among these seven which is exceptionally large, measuring 1.05in. by 0.7in., and it is worthy of note that I should have found abnormally large eggs both of *C. aurifrons* and *C. hardwickii*, the more especially as I have seen but very small series of both."

Between the years 1879, when a single example of this species reached the London Zoological Gardens, Russ states that no specimens were imported until 1894, when G. Bosz, of Cologne, received a large consignment; whether any of these specimens were forwarded to the London market I don't know, but shortly afterwards we began to see examples at our bird shows. One specimen seems to have come into the hands of Herr F. Weber, who fed it upon soft, sweet, cooked pears, highly sweetened rice and mealworms. It refused ants' cocoons, and looked with disdain at raw meat, but delighted in egg-plums and soft, sweet fruits generally.

In *The Avicultural Magazine* for 1897 Mr. Russell-Humphrys has given an interesting account of his lovely and well-known example of this species. According to him it is of no use to offer mealworms to *C. hardwickii*, as it will not touch them; though it is very clever in catching flies. Mr. Humphrys also advocates the use of banana in preference to orange as an article of diet; his example is a very clever mimic, but this is a well-known characteristic of the species of *Chloropsis*, and therefore not surprising. The article is well illustrated by a coloured plate by Frohawk.

CHAPTER V.

BABLERS (*Crateropodidae*).

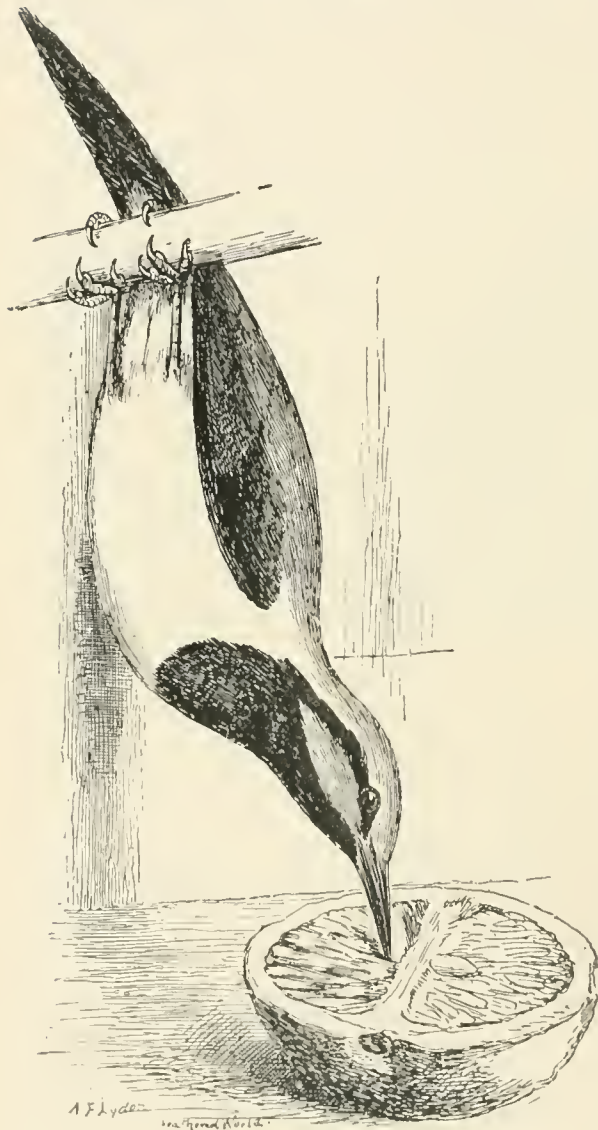
The Bulbuls, which Dr. Sharpe places in his expanded *Timeliidae*, are called by him Babbling Thrushes; he places the Mocking-birds and Bower-birds in the same family; but in all their habits the Mocking-birds seem to me to be true Thrushes, while the Bower-birds are aberrant Crows; with a few modifications, therefore, I prefer to follow the Zoological Society's list.

The Jay-Thrushes (*Dryonastes*, *Garrular*, etc.) are more or less predaceous birds, feeding partly upon young birds and eggs, and probably, I think, upon small rodents, and certainly reptiles. To keep them in health in captivity it is necessary occasionally to feed them much in the same manner as the Crow family, giving them small birds, mice, sparrows' eggs, etc.; when these cannot be obtained, a little minced raw beef, once a week, should be given, but fur and feather are preferable; in other respects they can be fed like true Thrushes, on a good insectivorous food and a little fruit; when obtainable, grapes are preferred to any other.

CHINESE JAY-THRUSH (*Dryonastes chinensis*).

Grey; head blue; front of head, lores and eyebrow-stripe, chin and front of throat black; forehead and cheek-patch white; upper part of body, back, and wings with a faint wash of olive-brownish; outer webs of flights with paler margins inner webs blackish, with a narrow paler margin; flights below dark ash-grey; wing-coverts the same; tail-feathers like the rest of the upper surface, but a trifle darker, below black with narrow pale tips to the feathers; under tail-coverts brownish-grey; bill black; feet brown; iris deep red-brown. Female smaller than male, and with shorter bill. Hab., China and Upper Burma.

Dr. Russ states that all that is known of the free life of this bird is that according to Swinhoe its call-note



BLUE-WINGED FRUIT-SUCKER.

is like the cawing of a Crow, or like a human being shouting "Hurrah!" and he congratulates his readers on the fact that the bird has been studied in captivity. Fortunately some notes on the wild life have been published in *The Ibis*.

Colonel Charles Bingham, in a paper on "Birds of the Southern Shan States" (*The Ibis*, 1903, p. 587) says:—"I never found this bird common, though it occurs over a wide range, and at elevations from 500 feet to 5,000 feet"; and E. C. Stuart Baker observes (*The Ibis*, 1906, p. 89) that "Capt. Harrington has taken the nest of this bird in the Shan States. He thus records the discovery:—'At Ganguni (5,000 feet) on the 1st of May I found a nest of this bird placed in a small tree about nine feet up. I was unable to shoot the bird, as it sat for some time on the edge of the nest just above my head, and then got away. The nest was exactly like that of the next species' (*D. sannio*); 'three eggs, measuring 1.04in. by .79in., glossy white.' Unfortunately we are not told what the nest of *D. sannio* is like.

Speaking of the Babblers, Mr. Frank Finn (*The Ibis*, 1901, p. 428) observes:—"Most esteemed, perhaps, is the Chinese Jay-Thrush (*Dryonastes chinensis*), which is only known here" (Calcutta) "as an imported bird, and under its Chinese name of *Peko*. It is a very fine songster, and an excellent mimic. A few arrive from time to time, and find a ready sale. I know of a very good specimen which is at least fourteen years old, and certainly shows no signs of age."

Mr. R. W. G. Frith noticed that his specimen of this bird had a habit, like the Crows, of sticking any bits of chopped meat which were given to it between the bars of its cage. If a bee or wasp was offered to it, this was instantaneously seized, the tail was thrown forward and the insect rubbed backwards and forwards between the feathers, as if to clean it, before it was killed. It would place a large beetle on the ground and kill and break it up with a quick, powerful blow of the bill. With a small snake it always manœuvred so as to hit it on the centre of the head, then it devoured the same about half at a time piecemeal, holding its prey under its foot, and hacking off pieces with its bill, according to its usual method of feeding (quoted by Russ from Blyth).

Dr. Russ fills several pages with accounts of this bird's song, its tameness in captivity, and its joy in recognising another example of its species after a long term of solitary life. He says that the first example to reach Germany went to the Berlin Aquarium. The following is perhaps worth recording:—"Mr. Peter Frank of Liverpool remarks that a friend of his in the South of England had made an attempt to breed with a pair of Jay-Thrushes. Moreover, these birds killed and devoured little fish, but he could never make sure whether they brushed an insect or other prey with their tail-feathers. The pair actually started to breed; yet the birds always broke up their own eggs. Although in the most approved manner they were provided in the matter of food, for the most part alive, snails, little fish, blight, mealworms, etc., they did not discontinue this unnatural behaviour, and consequently were unable to breed successfully."

This is a well-known species in our Zoological Gardens, and has been in the possession of not a few private aviculturists.

MASKED JAY-THRUSH (*Dryonastes perspicillatus*).

Front of head to above eye, sides of head including cheeks and ear-coverts black; remainder of upper surface dull greyish-brown; wings somewhat darker; the flights with greyish margins to the outer webs; tail-feathers black-brown; the two central ones and the basal half of the others clear brown; body below brown-

ish-white; the abdomen and under tail-coverts bright yellowish rust-red; bill black-brown; feet brownish flesh-coloured; iris dark brown. The female is rather smaller and has a shorter bill. Hab., South China. According to Père David, it is a resident species and is abundant in the vicinity of human dwellings and on fields in the plains which are dotted over with groups of trees, scrub, and bamboo-jungle, but never in dense woods. It seeks its food on the ground, along the hedges which enclose fields and under the bamboos: this consists principally of insects, as well as all kinds of fruits and seeds; moreover it pursues small birds in order to kill and eat them. Its screaming, unpleasing song is continually to be heard.

Mr. F. W. Ryan, in a paper on the birds of the lower Yangtse Basin (*The Ibis*, 1891, p. 334) says:—"A common resident, frequenting thick cover and bamboo copses on the plains."

Messrs. La Touche and Rickett "on the nesting of Birds in Fohkien" (*The Ibis*, 1906, p. 28) say:—"We have taken but four nests of this common resident. There are two, or perhaps three, broods in the season, as we have taken eggs as late as July 11th.

"A nest found on May 9th was placed in a large thorny bush eight or ten feet from the ground. It was composed of hard wiry tendrils, within which was a layer of dead leaves, and then a layer of straw, that showed conspicuously all round the edge, giving the nest the curious appearance of having a straw binding. The lining was of pine-needles. Another nest, built in a small tree, was composed of coarse grass, roots, and a few small twigs, lined with fine dry grass.

"The nests are 6in. or 7in. in external diameter, 4in. in internal diameter. In depth they are 4in. externally and 2in. to 3in. internally.

"Eight eggs average 1.10in. by .85in.; they are delicate greenish white in colour and, as a rule, very glossy, but the texture is uneven; in shape they are more or less oval. There are three or four eggs in a clutch."

In his "Field-Notes on the Birds of Chekiang" (*The Ibis*, 1906, pp. 438-9), Mr. J. D. D. La Touche says:—"Abundant and resident. It breeds in the bamboo-copses round about the villages and also in the reed-beds. The nests which I have seen in the former were all placed on bamboos at a considerable height from the ground—twelve feet at least. Two half-torn-down and deserted nests found on June 10th in a patch of reeds were about five feet from the ground; one contained three slightly incubated eggs, the other was empty. Fresh eggs were brought to me on June 21st, July 11th, and July 13th, so that no doubt two broods are reared here. The Chinkiang nests which I have seen resemble those taken at Foochow, but ten eggs taken at Chinkiang are much larger than Foochow eggs. They average 1.14in. by 0.86in. The largest is 1.20in. by 0.86in., the shortest 1.07in. by 0.85in."

Dr. Russ observes that this Jay-Thrush is one of the most infrequent to appear in the European bird-market and only comes extremely rarely to the large Zoological Gardens (London Gardens, 1878); nevertheless in the year 1884 it was advertised several times by English dealers in the *Gefiederte Welt*.

COLLARED JAY-THRUSH (*Garrulax picticollis*).

Upper surface grey-brown washed with cinnamon, but indistinctly; the innermost secondaries and central tail-feathers indistinctly transversely barred; back of neck strongly washed with golden cinnamon, diffused; outer secondaries and primaries with black inner webs, the primaries with their outer webs becoming increasingly white outwardly, the outermost being

almost entirely so, but the innermost golden brownish changing to grey towards the tips; all the outer tail-feathers broadly banded with black towards the tips which are grey internally, broadly white externally; lores sordid whitish; a distinct pure white eyebrow streak, below which a black streak runs above the ear-coverts to the sides of neck, which are also black; ear-coverts ashy white with blackish shaft-streaks, the outermost row black broadly tipped with white, forming an ill-defined irregular bar; moustachial streak black; underparts white, the feathers of throat and chest faintly tipped with buffish; a broad undulated black belt from sides of neck across the chest, behind which the white feathers are more deeply stained with buffish*; sides of body cinnamon; under tail-coverts buffish; under wing-coverts white washed with pale cinnamon; bill with upper mandible blackish-horn; lower mandible slightly paler, more flesh-coloured changing to white at base; feet greyish horn-coloured; iris bright chestnut. Female slightly smaller, and with a shorter and more slender bill. Hab., China.

The late Consul Swinhoe, who originally described and named this bird, tells us that he found in its stomach smooth caterpillars, grasshoppers, seeds, and the pulp of fig-like berries.

Messrs. Rickett and La Touche (*The Ibis*, 1897, pp. 504-5), say:—"We found this species common at Ching Feng Ling. The birds were always in parties, frequenting underwood in all forests or detached clumps of trees.

"They appear to feed chiefly on the ground, and one of us obtained a good view of some when thus engaged. They were scattering the dead leaves about, and pecking vigorously at the earth. The blows dealt at the earth were extraordinarily powerful, the bird raising itself to the full stretch of its legs and bringing its beak down like a pickaxe, at the same time dropping its wings down by its sides.

"When disturbed they invariably took to the trees, calling with clear and very melodious notes, and rapidly disappeared from sight. Wounded birds uttered loud harsh cries, and ran through the cover with great speed.

"We obtained twenty-five specimens, and note a good deal of variety in the colour of the 'necklace,' which varies from pale ash to dark iron-grey and black, these colours being often mixed and shading into one another.

"Young birds are much smaller than the old ones. They want the white streaks on the ear-coverts, and the 'necklace,' where it crosses the chest, is narrow, blackish, and unbroken. Their irides are pale straw-colour, while in the old birds it is usually crimson."†

In *The Ibis* for 1899, p. 180, Mr. La Touche says:—"Although we obtained breeding examples at Kuatun during the last expedition, we failed to find the nest. A large flock was met on the 20th March in a wood close to the river in the Kienyang district, so that this bird may be said to be an inland species occurring in mountainous wooded country at all altitudes, probably all over South-west Chekiang, Western Fohkien, and N.E. Kwangtung."

Dr. Russ spoke of this as "one of the very rarest imported foreign birds living in our possession," but if this is true as regards the German market it is not so in England.

The Zoological Society received its first example from the Paris Jardin d'Acclimatation in 1873, but the Berlin Gardens did not obtain one until twenty years later. I

purchased a specimen in 1900 (January 26th), and it lived in my possession in perfect health, and, after it had been transferred to a sufficiently large cage, in perfect plumage, until January 16th, 1907, when it was unaccountably taken ill and died two days later. It fell well to the last.

Although after a time this bird became wonderfully tame, and would readily take insects from one's fingers, it cannot be recommended as a pet. Its song is a harsh sort of chattering, and its note when it wants anything or desires to be noticed is an incessant irritating plaintive whistle rapidly repeated; when hungry it utters a harsh note something like *l'erk!* repeated with a short interval four or five times. It is, however, a strikingly handsome bird, and when breaking up a mouse its businesslike manner of raising itself high on its legs and digging at it with its powerful bill is amusing; it will eat any amount of cockroaches, swallowing even the largest down whole after giving them a single dig with its bill.

Towards the end of its life I suppose my bird must have become more contented, for his irritating whistle became more and more rare, so that sometimes it was not heard for months together. I remember Mr. Fulljames telling me that he was obliged to get rid of a specimen which he once had because the neighbours complained of the noise. They would if the bird was anywhere where they could hear it. I hardly know which is the more unbearable—the miserable whistling of a Collared Jay-Thrush, or the everlasting measured *Hoo, hoo, hoo* (literally repeated hundreds of times) of a male Wonga-Wonga Pigeon.

WHITE-CRESTED JAY-THRUSH (*Garrulax leucolophus*).

Head, neck, and breast white, washed with ashy-grey on the nape and back of neck; a black streak from upper mandible through the eye to the ear-coverts; remainder of plumage rufous-brown washed with olivaceous, and becoming more chestnut at its junction with the white; tail darker; flights and tail with dusky inner webs; bill black; feet leaden grey; iris red-brown to brownish-yellow. Hab., Himalayas from the far north-west to Bootan, and thence through the Khasia hills to Arrakan. (Jerdon.)

Jerdon says of this species ("Birds of India," Vol. II., p. 35): "It assembles in large flocks of twenty or more, every now and then bursting out into a chorus of most discordant laughter, quite startling at first, and screaming and chattering for some time. They feed on the ground a good deal, turning over dead leaves for insects, but also eat various berries. They frequent the hill zone from about 2,000 to 6,000 feet of elevation (rarely higher), but are most numerous between 3,000 and 4,000 feet.

"I have had the nest and eggs brought me more than once when at Darjeeling, the former being a large mass of roots, moss, and grass, with a few pure white eggs."

The following notes are from Oates's edition of Hume's "Nests and Eggs of Indian Birds." Vol. I., pp. 47, 48:—"According to Mr. Hodgson's notes, the Himalayan White-crested Laughing-Thrush breeds at various elevations in Sikhim and Nepal, from the Terai to an elevation of 5,000 or 6,000 feet, from April to June. It lays four to six eggs, which are described and figured as pure white, very broad ovals, measuring 1.2 by 0.9. It breeds, we are told, in small trees, constructing a rude cup-shaped nest amongst a clump of shoots, or between a number of slender twigs, of dry bamboo-leaves, creepers, scales of the turmeric plant, etc., and lined with fine roots."

According to Mr. Gammie, "The eggs are usually four

* In 1900 I described the underparts of this bird as "mostly yellowish-brown," so that it would seem that this is a characteristic of the young bird.

† A slight exaggeration if my bird was a normal specimen; the eye is a bright chestnut-red.

or five in number, but on several occasions I have found as few as two well-set eggs."

The author observes:—"Numerous nests of this species have been sent me, taken in May, June, and July, at elevations of from 2,000 to fully 4,000 feet, and in one case it is said 5,000. They are all very similar, large, very shallow cups, from 6 to nearly 8 inches in external diameter, and from 2.5 to 3.5 in height; exteriorly all are composed of coarse grass, of bamboo-spathes, with occasionally a few dead leaves intermingled, loosely wound round with creepers or pliant twigs, while interiorly they are composed and lined with black, only moderately fine roots or pliant flower-stems of some flowering-tree, or both. Sometimes the exterior coating of grass is not very coarse; at other times bamboo-spathes exclusively are used, and the nest seems to be completely packed up in these."

According to Russ, this species is rare in the trade; it reached the Zoological Gardens of London and Amsterdam in 1876; soon afterwards Messrs. E. Linden and E. von Schlechtendal secured specimens. The former gentleman observes:—"I received this bird from Jamrach of London as a Crested Pekoe, with the information that it was a good singer. Now, if one does not take the matter of song literally, but accepts in its place an unsatisfactory vocal organ, that assertion is justifiable. Its perpetual restlessness and constant movement is, as it were, accompanied by a subdued murmuring, somewhat as in the case of a person who has a habit of humming something to himself. The loud tones most nearly resemble a quickly jerked out laugh, and this passes into a loud rattle." In nine cases out of ten, if a dealer goes out of his way to praise the song of a bird in order to dispose of it to a customer one may expect to be disappointed.

WHITE-THROATED JAY-THRUSH (*Garrular albugularis*).

Upperside olivaceous-brown; forehead yellowish-brown; lores and a streak below the eye black; flights darker brown with paler inner margins; tail-feathers greenish-brown, with black-brown bands and broad white margins; the two central ones uniformly greenish-brown; angle of lower mandible and throat white; upper breast dull greenish-brown; remainder of under surface yellowish rust-coloured; the sides and under tail-coverts deeper in colour; bill black-brown; feet horn-grey; irides bluish-grey. The female only differs as usual. Hab., Himalayas generally from Bootan to Simla; more common in the North-west than in the East. "It prefers rather high elevations, from 5,000 to 9,000 feet and upwards; lives in large flocks, feeding mostly on the ground, among bamboos and brush-wood, and every now and then screaming and chattering, but not so loudly or discordantly as some of the others. Hutton, who says that it is very common at Mussooree, found the nest 'about seven or eight feet from the ground, of woody tendrils, twigs, fibres, or at times of grass and leaves, and with three beautiful shining green eggs.' It is not very common at Darjeeling, and is not found below 6,000 or 7,000 feet."—Jerdon, 'Birds of India,' Vol. II., p. 39.

In Oates's edition of Hume's "Nests and Eggs of Indian Birds" we read:—"The White-throated Laughing-Thrush breeds throughout the lower southern ranges of the Himalayas from Assam to Afghanistan at elevations of from 4,000 to 8,000 feet. They lay from the commencement of April to the end of June. The nest varies in shape from a moderately deep cup to a broad shallow saucer, and from 5 to 7 or even 8 inches in external diameter, and from less than 2 to nearly 4 inches in depth internally. Coarse grass, flags, creepers,

dead leaves, moss, moss- and grass-roots, all at times enter more or less largely into the composition of the nest, which, though sometimes wholly unlined, is often neatly cushioned with red and black fern and moss-roots. The nests are placed in small bushes, shrubs, or trees, at heights of from 3 to 10 feet, sometimes in forks, but more often, I think, on low horizontal branches, between two or three upright shoots. "There is, I think, the regular complement of eggs, and this is the number I have always found when the eggs were much incubated. I have not myself observed that this species breeds in company, nor can I ever remember to have taken two nests within 100 yards of each other."

Dr. Russ says that "although this is one of the birds most rarely brought to Europe, it occasionally reaches Zoological Gardens. In the year 1876 it was already in the London Gardens, and at the present time the Zoological Gardens of Berlin possess it."—"Fremdländischen Stubenvögel," Vol. II., p. 232.

BLACK-GORGETED JAY-THRUSH (*Garrular pectoralis*).

Above pale olivaceous-brown, washed with rust-reddish on back and rump; nape and hind neck bright rust-reddish; flights with ashy margins; lateral tail-feathers banded with black and white; a narrow white eyebrow stripe; lores, cheeks and ear-coverts greyish or white (sometimes black) enclosed by two narrow black lines from base of bill, which unite behind into a broad band on the sides of the neck and expand into a gorget on the upper breast; chin white; neck, throat, breast, and sides of abdomen usually pale fulvous or bright rust-coloured; middle of lower abdomen, and sometimes the throat and breast white; bill bluish horn-coloured; feet greenish lead-coloured; irides brown, orbital skin dull leaden. Jerdon observes that "this species varies a good deal (according to the locality) in the markings on the ear-coverts, which in some are black, in others white mixed with black, and in some the pectoral band is obsolete. Specimens from the Himalayas have usually the ears silver-grey, whilst those from Arrakan have them black and grey in every gradation. It is found in the Himalayas, extending through Assam into Burmah."—"Birds of India," Vol. II., p. 40 (cf. *The Ibis*, 1903, p. 587).

In Hume's "Nests and Eggs of Indian Birds," 2nd ed., pp. 45, 50, we read:—"Mr. Oates tell us that he found the nest of the Black-gorgeted Laughing-Thrush in the Pegu Hills, on the 27th April, containing three fresh eggs; the bird was sitting. The nest was placed in a bamboo-clump about 7ft. from the ground, made outwardly of dead bamboo-leaves and coarse roots, lined with finer roots and a few feathers; inside diameter 6in., depth 2in. Two eggs measured 1.04 by 0.83 and 0.86. Colour, a beautiful clear blue.*"

"A nest sent me from Sikhim, where it was found in July, contained much larger eggs, and more in proportion to the size of the bird. The nest I refer to was placed in a clump of bamboos about 5ft. from the ground. It was a tolerably compact, moderately deep, saucer-shaped nest, between 6 and 7 inches in diameter, composed of dead bamboo-sheaths and leaves bound together with creepers and herbaceous stems, and thinly lined with roots. It contained two eggs. These are rather broad ovals, somewhat pointed towards one end; of a uniform pale greenish blue, and are fairly glossv. These eggs measured 1.33 and 1.30 in length, and 0.98 in breadth."

Dr. Russ says that this is one of the very rarest birds

* Mr. Hume thinks one of the eggs rather small for the size of the bird, and Mr. Oates observes:—"I fear I may have made a mistake in identifying the nest referred to."

in the trade; and that, to his knowledge, only a single example has been imported living to the Berlin Gardens, where it still is; he evidently overlooked the fact that two specimens arrived at the London Gardens in April, 1890.

STRIATED JAY-THRUSH (*Grammatoptila striata*).

Above rufous-brown with white shaft-streaks; head more umber-brown; wings redder, tail almost chestnut; outermost primaries with ashy outer margins; under surface paler, with yellowish-white shaft-streaks, those on abdomen wider and longer than those on the back; bill black; feet dull leaden; irides red-brown. Hab., Bootan to Nepal; common at Darjeeling from about 6,000 to 9,000 feet, according to Jerdon. He makes the following remarks about the species ("Birds of India," Vol. II., p. 12):—"This bird has a remarkably strong and Jay-like bill, and was originally described as a Jay by Vigors. In its mode of coloration it approaches some of the *Garrular* series, viz., *Trochlopteron lineatum*, and *T. imbricatum*." "It frequents the densest thickets, in pairs, or in small and scattered parties. It has some very peculiar calls, one of them not unlike the clucking of a hen which has just laid an egg. I found both fruit and insects in the stomach of those which I examined, chiefly the latter."

The following notes are from Hume's "Nests and Eggs of Indian Birds," 2nd ed., Vol. I., p. 67:—"The Striated Laughing-Thrush," remarks Mr. Blyth, "builds a compact Jay-like nest. The eggs are spotless blue, as shown by one of Mr. Hodgson's drawings in the British Museum."

"A nest of this species found near Darjeeling in July was placed on the branches of a large tree, at a height of about 12 ft.

"It was a huge shallow cup, composed mainly of moss, bound together with stems of creepers and fronds of a *Selaginella*, and lined with coarse roots and broken pieces of dry grass. A few dead leaves were incorporated in the body of the nest. The nest was about 8 or 9 inches in diameter and about 2 in thickness, the broad, shallow, saucer-like cavity being about an inch in depth.

"The nest contained two nearly fresh eggs. The eggs appear to be rather peculiarly shaped. They are moderately elongated ovals, a good deal pinched out and pointed towards the small end, in the same manner (though in a less degree) as those of some Plovers, Snipe, etc. I do not know whether this is the typical shape of this egg, or whether it is an abnormal peculiarity of the eggs of this particular nest. The shell is fine, but the eggs have very little gloss. In colour they are a very pale spotless blue, not much darker than those of *Zosterops palpebrosus*.

"The eggs measure 1.3 and 1.32 in length, and 0.89 and 0.92 in breadth."

From further notes it is made clear that the eggs above described are perfectly normal.

Russ states that this bird is extremely rare, and has only reached the largest Zoological Gardens singly: at any rate, our Gardens seem to have possessed it more than once, and these extremely rare birds have a trick of turning up, now and again, in some numbers, in the bird-market. I well remember when the late Mr. Abrahams first imported a few specimens of *Bathilda rufo-cauda* and sold them at £8 a pair he tried to persuade me to purchase a pair at £5 as a great favour, telling me that in all probability I should never have another chance; later on I bought a pair for £2, and in 1905 and 1906 they were down to 10s. a pair, many hundreds being on the market.

RED-HEADED LAUGHING-THRUSH* (*Trochlopteron erythrocephalum*).

Above greyish olivaceous; head and nape chestnut; lores, chin, and throat black; ear-coverts reddish and dark brown; neck at back olivaceous varied with black; lesser wing-coverts deep chestnut; primaries olivaceous, washed with rust-reddish; breast greyish olivaceous, spotted with black, especially at the sides; abdomen and under tail-coverts olivaceous; bill greyish horn-brown; feet dull yellow; irides ? . Hab., N.W. Himalayas and western districts of Nepal (Jerdon).

"By no means uncommon in Kumaon, where it frequents shady ravines, building in hollows and their precipitous sides, and making its nest of small sticks and grasses, the eggs being five in number, of a sky-blue colour." (Shore, cf. Jerdon, "Birds of India," Vol. II., p. 43.)

In Hume's "Nests and Eggs of Indian Birds," pp. 55, 56, we read:—"From Kumaon westwards, at any rate as far as the valley of the Beas, the Red-headed Laughing-Thrush is, next to *T. lineatum*, the most common species of the genus. It lays in May and June, at elevations of from 4,000 to 7,000 feet, building on low branches of trees, at a height of from 3 to 10 feet from the ground.

"The nests are composed chiefly of dead leaves bound round into a deep cup with delicate fronds of ferns and coarse and fine grass, the cavities being scantily lined with fine grass and moss-roots. It is difficult by any description to convey an adequate idea of the beauty of some of these nests—the deep red-brown of the withered ferns, the black of the grass- and moss-roots, the pale yellow of the broad flaggy grass, and the straw-yellow of some of the finer grass-stems, all blended together into an artistic wreath, in the centre of which the beautiful sky-blue and maroon-spotted eggs repose. Externally the nests may average about 6 in. in diameter, but the egg-cavity is comparatively large and very regular, measuring about 3½ in. across and fully 2½ in. in depth. Some nests, of course, are less regular and artistic in their appearance, but, as a rule, those of this species are particularly beautiful. The eggs vary from two to four in number."

According to Colonel G. F. L. Marshall, the markings on the eggs are usually confined to the larger end.

This species has been represented in the collection of the London Zoological Gardens.

THE SPECTACLED THRUSH (*Trochlopteron canorum*).

I have adopted the above as the most descriptive title of the bird. Mr. Wiener calls it the "Chinese Jay Thrush," and scientists give to it the trivial name of "Chinese Laughing-Thrush," both of which appellations are more correctly applicable to the Black-throated Laughing-Thrush.

A specimen of this bird was given to me by Mr. Abrahams in 1892. It is of a deep reddish brown colour; the head redder than the back; this and the nape of the neck streaked with black shaft lines; the wing-coverts like the back; the quills sepia brown, reddish brown externally; the primaries reddish olive on the outer web; tail feathers olive-brown at the base and on the margins, dusky towards the tips, indistinctly barred; forehead brighter rufous than the crown and with distinct black shaft-streaks; the lores, sides of face, and ear-coverts dusky, washed with tawny

* In what respect the so-called Laughing-Thrushes of the Zoological Society's List differ from the Jay-Thrushes (the Laughing Thrushes of Jerdon and other Indian authors) I do not know: I expect they are all really Jay-Thrushes and that laughing is exceptional with them.

buff; a short eyebrow-streak from the back of the eye and a lozenge-shaped patch enclosing the eye, pale ashy grey*; cheeks, sides of the neck, throat, and under surface tawny buff, with black shaft-streaks on the three first mentioned; sides deeper in colour and more olive in tint, centre of abdomen ashy; lower abdomen, thighs, vent, and under tail-coverts deep tawny buff; under wing-coverts tawny buff, excepting those of the lower series, which are ashy brown; quills below dark brown, reddish along the edge of the inner web; bill brown, with the base of the lower mandible yellowish, almost yellow in old birds; legs and claws yellowish; iris of eye yellow. This species appears to be confined to China.

In *The Ibis* for 1891, pp. 334-5, in an article on the "Birds of the Lower Yangtse Basin," Mr. F. W. Styan observes:—"Abundant throughout the district on wooded hills, where they frequent the thick cover and find their food among the dead leaves. They are not shy, but thread their way so rapidly through the densest brushwood, half flitting, half hopping from branch to branch, and sometimes dodging along the ground among the stumps, that it is difficult to shoot them. They sing most beautifully morning and evening, and are then more easily approached. They are favourite cage-birds with the natives, who can always rouse them into song by imitating their note. When caged they exhibit considerable powers of mimicry, and are often known as 'Mocking-birds.'"

"Though naturally hill-birds, they sometimes stray into the plains when good cover attracts them. I have seen them in our garden, and shot them inside the walls of Kiukiang city, also in the Kahing silk-districts."

In *The Ibis* for 1906, p. 438, Mr. J. D. D. La Touche says:—"Common on the higher wooded hills, but also found in copses on the plain. It breeds in April, May, June, and July."

"A nest which I took on May 5 was placed in a small holly-bush in a wooded ravine. It contained four incubated eggs. The nest was composed of leaves, coarse grass-blades, and twigs, and had a lining of pine-needles. The measurements were: outer diameter about 5½ in., by 6 in., outer depth 4½ in., inner diameter 3½ in., inner depth about 2½ in. Twelve eggs taken near Chinkiang average 1.04 in. by 0.81 in.; the largest is 1.10 in. by 0.83 in., and the smallest 0.95 in. by 0.80 in."

In the Catalogue of Eggs in the British Museum, Vol. IV., p. 9, under *T. canorum*, we read:—"Eggs of the 'Hwa-mei,' or Chinese Laughing-Thrush, are of a rather broad oval form, glossy, and of a spotless pale blue colour. They measure from 1.00 to 1.04 in length, and from .80 to .85 in breadth."

Herr Wiener says: "Unusual opportunities of observing this Thrush allow me to name him as an incomparable songster, a long-lived cage-bird, and one of rare intelligence." Unhappily, my experience has been the reverse: my bird was taken out of a room where he had a good deal of liberty, and was transferred to a Thrush cage; he gave me a few notes, not unlike those of a Blackbird, on the first two days of its captivity, but he was very nervous, soon began to mope, and after about three months he died in a decline. Judging by what I saw of it in a room with numerous other birds, I should say that Herr Wiener is mistaken in saying: "In the aviary the bird would certainly prove quarrelsome, and might prove destructive." I saw it in company with Blue-birds, *Liothrix* Weavers, Larks, Crested Pigeons, Bulbuls, Cardinals, etc., and though it is as large as a

Blackbird and far more active, it did not seem to interfere in any way with its companions. Its flight in this comparatively small area was rapid but short: rather more like a series of long leaps than a true flight, though when frightened by the net it showed that it could fly and turn in the air very rapidly.

Dr. W. H. Brazil (*The Feathered World*, August 26th, 1892) observes:—"The Chinese seem very fond of these birds, and in Shanghai I saw a great many of them hung up outside the houses in pretty little bamboo cages. Unfortunately I never heard one of them sing, but they have the reputation of being good vocalists. I was told also that they are very difficult to bring over to this country, as they usually die on the voyage, but I suspect this is through improper feeding."

With regard to the South-Island Thrush (*Turnagra crassirostris*), it is not very likely to come into the hands of our readers, although specimens have been deposited at our Gardens. New Zealand birds seem seldom to arrive in our Bird-market, and this species is not even mentioned in Dr. Russ's big work. Should it ever come into the possession of any fortunate aviculturist I should recommend him to look up the species in Buller's "Birds of New Zealand."

BLACK-HEADED SIBIA (*Malacias capistrata*).

Head, cheeks, and ear-coverts black, crown crested; nape pale chestnut or rust-reddish; back brownish-grey in the middle, deep red at back and on upper tail-coverts; tail, with the exception of the central feathers, deep red, black at base; the central feathers reddish grey with a broad subterminal black belt and grey tip, the inner webs red; bastard-wing black; primaries with grey-whitish outer edges, outer secondaries with bluish outer edges, inner secondaries red, washed on outer edges with blue-grey; smaller coverts brownish-grey, like centre of back; median coverts white, forming a bar; outer-coverts bluish-grey; throat pale reddish, remainder of under-parts deeper red; bill black; feet yellowish-brown, irides brown. Hab., "The whole Himalayas from Simla to Bootan, and is one of the most abundant birds about Darjeeling. It is found from 4,000ft. to 8,000ft., but most common about 7,000ft. It frequents the highest trees, climbing up the larger branches, and clinging round and below the smaller branches, almost like a Woodpecker or Nuthatch."

"It is often seen alone, or in pairs, but occasionally in small parties; and is constantly uttering its twittering call, which Hutton syllables as *titteree, titteree, tteeey*, often answered by one at some little distance. It is very fond of concealing itself in the thick masses of Epiphytic plants found on all lofty trees in Sikhim, and its favourite food is the fruit of the Epiphytic *Andromeda* so abundant about Darjeeling; it occasionally, however, picks insects from moss, or crevices of the bark."

"I on one occasion saw it at Karsion, 4,500ft. high, in winter, climbing up and down the thatched roof of a bungalow. Hutton procured the nest at Mussooree, made of coarse grass, moss, wool, and roots; and the one egg he got was pale bluish-white, with rufous freckles." (Jerdon, "Birds of India," Vol. II., p. 55.)

In Hume's "Nests and Eggs of Indian Birds," Vol. I., p. 133, we read:—"The Black-headed Sibia lays throughout the Himalayas from Afghanistan to Bhootan, at elevations of from 5,000ft. to 7,000ft."

"It lays during May and June, and perhaps part of July, for I find that on the 11th of July I found a nest of this species a little below the lake at Nynee Tal, on the Jewli Road, containing two young chicks apparently not a day old."

* This character probably disappears after death, as it is omitted in all scientific descriptions that I have seen.—A. G. B.

"They build on the outskirts of forests, constructing their nests towards the ends of branches, at heights of from 10ft. to 50ft. from the ground. The nest is a neat cup, some 4in. or 5in. in diameter, and perhaps 3in. in height, composed chiefly of moss and lined with black moss-roots and fibres. In some of the nests that I have preserved a good deal of grass-leaves and scraps of lichen are incorporated in the moss. The cavity is deep, from 2½in. to 3in. in diameter and not much less than 2in. in depth.

"They lay two or three eggs; not more, so far as I yet know."

In *The Aricultural Magazine*, N.S., Vol. 1., pp. 255-262, Mr. Reginald Phillippis has given an account, illustrated by a coloured plate, of a pair of this species in his possession. He says: "The sexes are alike; nevertheless it is seldom that I cannot distinguish my male from the female. During the first year the difference was usually unmistakable, the male being the larger and thicker bird, and the crest longer and more wavy; and he was much more bold and enterprising." Anybody who is fortunate enough to secure examples of this bird should read Mr. Phillippis' account. He tells us that Mr. E. W. Harper lost eleven specimens in England in 1902, but one was shot and another drowned and nobody knows whether or not the others survived the succeeding winter.

GOLDEN-EYED BABBLER (*Pycnorhis sinensis*).

Rufous-brown above; more cinnamon on wings; the tail with ill-defined darker bands; lores and an eyebrow streak and entire under-surface of body white; a bright orange ring encircling the eye; wings and tail below dusky greyish; bill black, with deep yellow nostrils; feet pale yellow; irides dark brown. The sexes are much alike.

Jerdon observes ("Birds of India," Vol. II., pp. 15, 16):—"This species of Babbler is universally spread throughout India, extending to Burmah, and, from the name, perhaps to China. It has been sent from Nepal by Hodgson; is not rare in Bengal and the N.W.P.; is said to be common in Sindh, and I have seen it in every part of the South of India. It is also found in Ceylon, and it is very common in Upper Burmah. It frequents low jungles, or the skirts of forests, long grass, hedge-rows, and even comes occasionally into gardens. Though sometimes to be met with singly, it is generally seen in small parties of five or six, flying from bush to bush before you, and trying to conceal itself in some thick clump. It has a low chattering note when at rest, and when flying from bush to bush a loud sibilant whistle. I have on several occasions heard one, perched conspicuously on a high bush or hedge-row, pour forth a remarkably good song. It feeds mostly on insects, often on ants and small coleoptera. Mr. Blyth remarks that he possessed some of these birds alive, and noticed that they frequently placed one foot upon their food, while they pecked with the bill."

In Hume's "Nests and Eggs of Indian Birds" there are numerous notes on the nidification of this species, from which I select the following:—

"The Yellow-eyed Babbler breeds throughout the plains of India, as also in the Nilghiris, to an elevation of 5,000ft., and in the Himalayas to perhaps 4,000ft. It lays in the latter part of June, in July, August, and September. Gardens are the favourite localities, and in these the little bird makes its compact and solid nest, sometimes in a fork of the fine twigs of a lime-bush, sometimes in a mango, orange, or apple tree, occasionally suspended between three stout grass-stems, or even attached to a single stem of the huge grass from

which the native pens are made. I have taken a nest, hung between three reeds, exactly resembling in shape and position the Reed-Warbler's nest (*Salicaria arundinacea*), figured in Mr. Yarrell's vignette at page 313, Vol. 1., 3rd edition.

"The nest is typically cone-shaped (the apex downwards), from 5in. to 6in. in depth, and 3in. or 4in. in diameter at the base; but it varies of course according to situation, the cone being often broadly truncated. In the base of the cone (which is uppermost) is the egg-cavity, measuring from 2in. to 3in. in diameter, and from 2in. to 2½in. in depth. The nest is very compactly and solidly woven, of rather broad blades of grass, and long strips of fine fibrous bark, exteriorly more or less coated with cobwebs and gossamer-threads. Interiorly, fine grass-stems and roots are neatly and closely interwoven. I once found some horse-hair along with the grass-roots, but this is unusual.

"The full number of eggs is, I believe, five. I have repeatedly taken nests containing this number, and have comparatively seldom met with a smaller number of eggs at all incubated." (p. 95-6.)

Mr. Oates writes:—"The eggs vary a good deal in size and shape, and very much in colouring. They are mostly of a very broad oval shape, very obtuse at the smaller end. Some are, however, slightly pyriform, and some a little elongated. There are two very distinct types of coloration: one has a pinkish-white ground, thickly and finely mottled and streaked over the whole surface with more or less bright and deep brick-dust red, so that the ground-colour only faintly shows through, here and there, as a sort of pale mottling; in the other type the ground-colour is pinkish-white, somewhat sparingly, but boldly, blotched with irregular patches and eccentric hieroglyphic-like streaks, often Bunting-like in their character, or bright blood or brick-dust red. The eggs of this type, besides these primary markings, generally exhibit towards the large end a number of pale inky-purple blotches or clouds. . . . Combinations of these different types of course occur, but fully two-thirds can be separated distinctly under the first and second varieties. Though much smaller, many of the eggs recall those of the English Robin. The eggs have often a fine gloss." (P. 98.)

Four specimens of this species reached our Zoological Gardens in 1868, and in *The Aricultural Magazine*, 1st ser., Vol. VIII., pp. 108-10, Mr. E. W. Harper published an account of his experience of eight examples which he kept in an aviary. As regards the food suitable for this species, he says: "Dr. Butler's famous mixture of powdered biscuit, ants' cocoons, egg yolk, and dried flies would doubtless suit him excellently as a staple food. Personally, whilst in India, I do as the Indians do: that is to say, pea-meal, well mixed with a little refined butter, forms the staple diet of nearly all my insectivorous birds. With this is intimately incorporated, every alternate day, a little raw, finely-minced liver or kidney. Whatever food be given, meal-worms or maggots should form part of the daily menu.

"Tit-bits of a hard and shelly nature, such as grasshoppers, cockroaches, dried flies, etc., must be given at intervals to cleanse and stimulate the digestive organs; for the same reason that beasts and birds of prey require hair, fur, or feathers to keep them in continued good health."

In *The Aricultural Magazine* for the year following, Mr. Reginald Phillippis gave an account, illustrated by a coloured plate, of a specimen in his possession. It would be well for anybody who might secure a Golden-eyed Babbler to look up these two articles.

GREY STRUTHIDEA (*Struthidea cinerea*).

General colour grey; each feather with a paler tip; wings brown; tail black, the central feathers with a deep metallic green gloss; bill and feet black; irides pearly white. Sexes much alike. Hab., southern and eastern portions of the interior of Australia, according to Gould. He observes ("Birds of Australia," Vol. I., pp. 413-4): "I found it inhabiting the pine ridges, as they are termed by the colonists, bordering the extensive plains of the Upper and Lower Namoi, and giving a decided preference to the *Callitris pyramidalis*, a fine fir-like tree peculiar to the district. It was always seen in small companies of three or four together, on the topmost branches of the trees, was extremely quick and restless, leaping from branch to branch in rapid succession, at the same time throwing up and expanding the tail and wings; these actions being generally accompanied with a harsh unpleasant note; their manners, in fact, closely resemble those of the White-winged *Corcorax* and the *Pomatorhini*."

"The following notes on this species I find in Gilbert's journal of the occurrences during his expedition with Leichhardt from Moreton Bay to Port Essington. They were written on the sixteenth day after his departure, and will not be devoid of interest:—

"Oct. 19.—Strolled about in search of novelties, and was amply repaid by finding the eggs of *Struthidea cinerea*. I disturbed the bird several times from a rose-wood-tree growing in a small patch of scrub, and felt assured it had a nest, but could only find one, which I considered to be that of a *Grallina*; determined, if possible, to solve the difficulty, I lay down at a short distance within full view of the tree, and was not a little surprised at seeing the bird take possession of, as I believed, the *Grallina's* nest; I immediately climbed the tree and found four eggs, the medium length of which was one inch and a quarter by seven-eighths of an inch in breadth; their colour was white, with blotches, principally at the larger end, of reddish brown, purplish grey, and greenish grey; some of the blotches appearing as if they had been laid on with a soft brush. From the appearance of the nest, I should say it was an old one of *Grallina*, particularly as it contained a much greater quantity of grass for a lining than I ever observed in the nest of a *Grallina* while that bird had possession of it; if this be not the case, then the nest of *Struthidea* is precisely similar, being like a great basin of mud, and placed in the same kind of situation, on a horizontal branch.

"Oct. 21.—In the evening I again met with the *Struthidea*, which I disturbed from a nest like the one above described, and from the new appearance of the structure I am inclined to believe it to be constructed by the bird itself, although it does so closely resemble that of *Grallina*, especially as in this case the nest was placed in a situation far from water, and there were no *Grallina* in the neighbourhood. This nest, like the last, had a very thick lining of fine grass, and appeared as if just finished for the reception of the eggs."

"There is no doubt that the nests above described were those of *Struthidea*; those of *Corcorax* and *Grallina* are precisely similar; and we now know that all three birds build the same kind of mud nests."

"The food, as ascertained by dissection, is insects; the stomachs of those examined were tolerably hard and muscular, and contained the remains of coleoptera."

Russ says that this bird is rare in the German market: it has been offered to me more than once; but unless one has a deep pocket and many aviaries a bird of this kind is not sufficiently attractive to tempt one to purchase it; of course it is not a cheap bird, though,

on account of its sombre colouring, it is not excessively dear.

According to Russ it built a nest in the Berlin Aquarium and several times in the Berlin Zoological Gardens; in the latter also it laid eggs and brooded young ones, but unhappily without rearing them. In 1875 and 1876 the pair nested four times, Professor Peters taking possession of the second nest as well as eggs and young for the Royal Zoological Museum of Berlin.

The male fed the young more frequently than the female, apparently upon soft food and worms; possibly the want of abundant insect-food may have had something to do with the death of the young, yet Russ speaks of one attaining the age of two months and having its head split open by a white Australian Crow.

GREY HYPOCOLIUS (*Hypocolius ampelinus*).

Delicate buffish ash-coloured; the crest, throat and under tail-coverts of a purer pale buffish, washed with vinaceous; lores, sides of face enclosing eye, and a band at back of neck shining blackish; primaries black, the outer ones shaded with brown at the tips, otherwise with white tips; secondaries blackish, margined externally and tipped with ashy; tertials buffish-ash, blackish at base; tail-feathers broadly smoky black at the tips; under wing-coverts dull whitish; sides of breast shaded with ash; bill and feet horn-coloured, the former with black-brown tip.

The female is smaller, more olivaceous, crown and lores darker; no black on face or nape; primaries slightly edged externally with grey-brownish, the apical margin distinct, prominent, white; less black at the extremity of the tail-feathers, which are ashy grey or drab; under wing-coverts pale dull buffish. The young bird resembles the female, but is more dingy; the flights almost uniform in colouring, slightly blackish towards the tips, but not pale-tipped. Hab., N.E., Africa as far as the Niam-Niam country; the Persian Gulf, and Sind.

Mr. W. D. Cumming (cf. *The Ibis* 1886, pp. 478-80) says:—"It is not till the middle of June that they breed."

"In 1883, first eggs were brought by an Arab about the 13th of June, and on the 15th of the same month I found a nest containing two fresh eggs. In 1884, on the 14th of June, a nest was brought me containing four fresh eggs, and on the 15th I found a nest containing also four fresh eggs."

"2nd July, I came across four young birds able to fly. On the 3rd, three nests were brought, one containing two fresh eggs, another three young just fledged, and the other four eggs slightly incubated. On the 9th another nest, containing four young just fledged, was brought. On the 15th, I saw a flock of small birds well able to fly; on the 18th I found a nest containing four young about a couple of days old, and on the 20th a nest containing three eggs well incubated was brought from a place called "Goosha" on the opposite bank (Persian side) of the river."

"The nests are generally placed on the leaves of the date-palm, at no very great height. The highest I have seen was built about 10ft. from the ground, but from 3ft. to 5ft. is the average height."

"They are substantial and cup-shaped, having a diameter of about 3½ in. by 2½ in. in depth, lined inside with fine grass, the soft fluff from the willow when in seed, wool, and sometimes hair."

"The eggs are of a glossy leaden white, with leaden-coloured blotches, and spots towards the larger end,

sometimes forming a ring round the larger end, and at times spreading over the entire egg.

"On rare occasions I have noticed a greenish tinge in very fresh eggs. This, I think, is due to the colour of the inner membrane, which is generally a very light green, in some very faint and in others more decided; this tinge seems to disappear after the egg is blown.

"Very rough measurements are as follows:—0.9in. by 0.63in.; 0.83in. by 0.63in.; 0.83in. by 0.6in.; 0.83in. by 0.66in.; 0.86in. by 0.66in.

"In 1883 I managed to rear a young bird, feeding it on bread steeped in water and lots of flies.

"It used to fly about my room and the verandah, but always came to me when I showed it a fly. Unfortunately, one day I was rubbing up some brass hinges, and left them to steep in salad-oil, into which a fly fell; the bird immediately seized and swallowed it, and in a few hours after got a fit, which recurred several times during the next two days, and on the third day it died.

"I have known the old birds forsake a nest after it has been once examined, and even to stop building when it has been observed, and leave the locality altogether."

When a statement like the above is made about any bird it is generally ridiculed by those who have not themselves observed it. In the case of our English Wren I have frequently observed the same thing.

Mr. Cuming presented a male of this species to our London Zoological Gardens in March, 1890, and a pair in May, 1892, but Dr. Russ does not notice the species in his "Fremdländischen Stubenvögel," yet there is no reason why other examples should not come to hand.

CHAPTER VI.

ORIOLES (*Oriolus*).

The Orioles were regarded by Seeborn as relatives of the Crows; but, whether related to them or not, it is certain that they have nothing to do with the so-called Orioles of the New World, which are to all intents and purposes Starlings. They are bright-coloured birds, chiefly yellow or scarlet and black, and they form hammock-like nests, lay white or salmon-pink eggs spotted with blackish-brown, sometimes with lilacine-greyish shell-markings. Their food consists of insects in all stages, spiders, and small fruits; and in captivity a good insectivorous food, with the addition of a few living insects and a little fruit daily, suits them well. I have only kept the European species, and I find it a most dull and apathetic bird, but possibly this may have been partly due to the fact that it was blind of one eye and had a drooping wing; as a show-bird an Oriole would be admirable.

BLACK-NAPED ORIOLE (*Oriolus indicus*).

Plumage bright yellow; the back and wing-coverts greenish; tips of primary-coverts bright yellow forming a spot of colour; primaries black, tipped and bordered with greenish-yellow; secondaries broadly margined with pale yellow; tertiaries with the outer web and part of the inner web greenish yellow; tail black, the central feathers narrowly tipped with yellow, which increases in width to the outermost feathers, which are very broadly yellow at the distal end; a black horse-shoe marking extending from the bill through the eye to the nape; bill pinky-reddish; feet leaden grey; irides blood-red. Female more greenish above and generally rather duller than the male. Young above yellowish-green, below whitish with dark shaft-lines; the horse-shoe like marking passing through the eyes and uniting

on the nape not or barely indicated; bill dusky. Hab., widely distributed throughout India, but rare; commoner in the countries to the east of the Bay of Bengal, Arrakan, Pegu, and Tenasserim, extending to Malacca; appears to be found in China. (Jerdon.)

Neither Jerdon nor Hume gives any information respecting the wild life of this species, but Mr. E. C. Stuart Baker (*The Ibis*, 1896, p. 332) publishes the following account of its modification:—

"I have taken two nests of this Oriole, both of the ordinary cradle-shape and quite indistinguishable from those of *O. melanocephalus* and *O. kundoo*. Both were built in masses of creepers growing over oaks, which stood in thin forest composed of that species of tree, and both were at a very great height from the ground, and were only got at after much time and trouble had been spent over them.

"The eggs, of which there were two in each nest, are of the usual Oriole type; three have a decidedly pink ground, perhaps rather darker than in most eggs of this genus, and are spotted in the ordinary way with rather dark reddish-brown. The fourth egg differs only in being rather paler and being rather more sparingly, though boldly, blotched with a still darker brown. Two of the eggs measure 1.09in. by 0.76in., and 1.05in. by 0.79in. The other two eggs I presented to the Asiatic Museum, Calcutta, without measuring them before doing so, but they were, if I remember rightly, both larger and longer than those I retained for my own collection."

Russ gives no information respecting the cage-life of the Indian Oriole. It has been exhibited at the London Zoological Gardens.

SYKES' ORIOLE (*Oriolus kundoo*).

Male bright yellow; wings black crossed by a yellow bar formed by the primary coverts; flights tipped and edged with yellow; central tail-feathers black, the remainder broadly and increasingly tipped with yellow: a black stripe from base of mandible, extending behind eye to ear-coverts; bill deep rose-red; feet leaden grey. Irides blood-red. Female more greenish above. Young above yellowish-green; bright yellow on rump, tips of inner webs of tail-feathers, sides of abdomen and vent; wings olive-brown; remainder of body below whitish striped with brown; bill black. Hab., India up to base of Himalayas, excepting Lower Bengal. (Jerdon.)

According to Jerdon this bird breeds during the rains in Central India; but "is to be found, at all seasons, in every part of the country in small numbers. It prefers a well-wooded country, but not deep forests; and lives in large groves of trees, gardens, and avenues. It chiefly feeds on fruit, especially on the figs of the *Banian* and *Pakur*, on mulberries, etc., also occasionally on caterpillars, and other soft-bodied insects. Its flight is strong, but undulating, with interrupted flappings. Its call is a loud mellow whistle, something resembling *pre-ho*; and the voice of the European Oriole must be very similar, as it is given as *puh-lo* and *bulow*; and the French name *Loriot* is said to be also given from its call.

"I have seen the nest several times, and I described one in my "Illustrations of Indian Ornithology," under *O. indicus*, as follows:—

"It was a cup-shaped nest, slightly made with fine grass and roots, and suspended from a rather high branch by a few long fibres of grass; these did not surround the nest, but only supported it on two sides. It contained three eggs, white, spotted, chiefly at the large end, with a very few large dark purple blotches."

"I procured a nest at Sangor, from a high branch

of a banian tree in cantonment. It was situated between the forks of a branch, made of fine roots and grass, with some hair and a feather or two internally, and suspended by a long roll of cloth about 3in. wide, which it must have pilfered from the neighbouring verandah, where the tailor worked. This strip was wound round each fork, then passed round the nest beneath, fixed to the other fork and again brought round the nest, to the opposite side; there were four or five of these supports on each side. It was, indeed, a most curious nest, and so securely fixed that it could not have been removed till the supporting bands had been cut or rotted away. The eggs were, as before described, white, with a few dark claret-coloured spots. Burgess describes a nest made of grass, spiders' web, hemp, and pieces of paper, placed in the fork of a tree, and two of the branches were bound together with the hemp. Theobald also found the nest, a neat cup of woven grass, attached by its side to the bough of a tree, and he describes the eggs as white, with black spots.—"Birds of India," Vol. II., p. 108.

Dr. Russ says that this Oriole was received at the London Zoological Gardens in 1878, and has been only once imported since that date, by G. Bosz. of Cologne. In this, however, he is mistaken, because a specimen was purchased by our Zoological Society in August, 1892 (seven years before the publication of his statement). It is quite likely that other examples may have come to hand more recently.

DRONGOS (*Dicrurida*).

According to Horsfield and Jerdon, these birds are related to the Shrikes. They seem to be purely insectivorous; they are splendid songsters and clever mimics; some of their notes are marvellously rich and organ-like.

LARGE RACKET-TAILED DRONGO (*Dissemurus paradiseus*).

Black, glossed with steel-blue; feathers of crown slightly hackled, those of nape strongly so, those of breast slightly; frontal crest falling backwards over nape; outer tail-feathers 18in. to 19in. long, the shaft having the terminal end, for about 3½in., barbed externally, but towards the tip only on the inner side, and turning inwards, so that the underside becomes uppermost.—Jerdon. "This very showy and curious bird is found in the dense forests of India, from the Himalayas to the Eastern Ghats as far south as N.L. 15 degrees. I have seen them from Nellore Ghats, Goomsoor, the forests of Central India, and they are found in Lower Bengal, the Sunderbuns, and the Himalayas. Out of our province it is found in Assam, Sylhet, Burmah, and Tenasserim. Near Darjeeling they do not range higher than 1,500ft. or 2,000ft. of elevation.

"This large Racket-tailed Drongo is found singly or in pairs, now and then in small parties, and appears to wander a good deal in search of food, flying from tree to tree, generally at no great elevation, making an occasional swoop at an insect on the wing, or sometimes whipping one off a branch.

"Frequently, however, it hunts for some time from a fixed station, returning to the same tree. Its food is bees, wasps, beetles, dragonflies, locusts, and mantides. It has a very peculiar call, beginning with a harsh chuckle, and ending in a peculiar metallic creaking cry. Mr. Elliot expresses it by *Tse-rung*, *Tse-rung*. It has, however, a great variety of notes. It follows birds of prey now and then, especially at the breeding time, just as our common King-crow does. I have had its nest brought me several times at Darjeeling; rather a large structure of twigs and roots, and the eggs, usually

three in number, pinkish white, with claret-coloured or purple spots; but they vary a great deal in size, form, and colouring. They breed in April and May.

"The Bhimraj is often caught and tamed, and may generally be had at Calcutta or at Monghyr, where the hill-men bring Shamas, Hill Mynas, Bhimrajs, and various other hill-birds for sale. It is a very amusing bird in confinement; will imitate all sorts of sounds, as of dogs, cats, sheep and goats, poultry, and the notes of many birds; hence it used to be called by some *Hazar-dastan*, or the bird with a thousand tales. Blyth had one that imitated the fine song of the Shama to perfection. In other respects, it is a very fearless amusing bird in captivity, and is sometimes even suffered to have its liberty, coming readily to the call of its owner. It will eat raw meat, lizards, and almost any kind of animal food that is offered to it."—Jerdon, "Birds of India," Vol. I., pp. 436-437.

In Hume's "Nests and Eggs of Indian Birds," 2nd edition, Vol. I., pp. 216-217, are many additional notes on the nidification of this species; but beyond the fact that one of the nests was situated 20ft. from the ground, it seems to me unnecessary to quote them.

Dr. Russ says that this Racket-tailed Drongo reached them in Germany in 1870, and in 1872 Alfred Brehm was able to confirm the accounts of the mimicking powers of the bird by observation of a specimen in the Berlin Aquarium. After this he says that for a long time it was rare in the market, only a few examples being received. Then Peter Franck, of Liverpool, obtained a specimen in 1884, and published an account of it in 1885. In 1892 an example reached the Berlin Zoological Gardens, and in 1894 Herr Fockelmann exhibited one at the exhibition of the "Ägintha" Society, which imitated the Shama's song. Latterly Russ says that it has become commoner in the market, and certainly I have myself seen it exhibited at the Crystal Palace; yet in the 9th edition of the List of Animals exhibited by our Zoological Society it does not appear.

INDIAN OR HAIR-CRESTED DRONGO (*Chibia hottentotta*).

Black, glossed with purple and blue on the nape and breast, wings and tail shining bronze-green; bill and feet black; irides red-brown. Hab., India, both North and South, Pegu, Tenasserim.

Jerdon observes:—"I found it in March on the silk-cotton trees (*Bombax malabaricum*), several together, apparently feeding on insects harbouring in the fine flowers of that tree, for which its long tenuirostral bill must be well adapted. I again saw it hopping and flying among the branches of a lofty tree in Wynaad, apparently picking insects now and then off the twigs or leaves. Tickell, who procured it in the jungles of Chota Nagpore, says that it frequents large timber-trees on the banks of nullahs, tanks, etc., and mentions that the cotton-tree in blossom was a great resort. It frolics about, says he, in small parties; its voice is changeable, and in constant exertion, from a beautiful song, to whistling, chattering, and creaking like a rusty wheel, at times resembling the higher strains of the organ, both striking and plaintive.

"Mr. Hodgson states that it feeds on wasps, bees, green beetles, etc., very rarely vetches; that it lives part of the year in pairs, or singly, and the rest in families; that it descends from its lofty perch to seize an insect on the wing, and occasionally seizes on the ground. I imagine that the vetches, stated by Hodgson to vary its food occasionally, must have been taken in its mouth with some insect which it seized off the plant.

"Buch. Hamilton says it is common in the neighbourhood of Calcutta, building among bamboos, living in pairs, and feeding on insects and fruits. It is said to sing well, he says, and is frequently tamed by the Mussulmans, who in the morning carry it about, and invoke the name of God and the prophet, in the same manner as they do with Parrakeets. The Lepchas of Darjeeling brought me a nest, which was said to have been placed high up in a large tree. It was composed of twigs and roots, and a few bits of grass, and contained two eggs, livid white, with purplish and claret spots, and of a very elongated form."—"Birds of India," Vol. I., pp. 439, 440.

In Hume's "Nests and Eggs of Indian Birds," 2nd edition, pp. 213-214, are the following notes, which I think should be quoted:—

"Mr. R. Thompson says: 'The Hair-crested Drongo is extremely common as a breeder in all our hot valleys (Kumaon and Gurwhal). It lays in May and June, building in forks of branches of small leafy trees situated in warm valleys having an elevation of from 2,000 to 2,500 feet. The nest is circular, about five inches in diameter, rather deep and hollow; it is composed of fine roots and fibres bound together with cobwebs, and it is lined with hairs and fine roots. They lay from three to four much elongated, purplish-white eggs, spotted with pink or claret colour.'

"Mr. J. R. Cripps has written the following valuable notes regarding the breeding of the Hair-crested Drongo in the Dibrugarh district, in Assam:—

"May 17th, 1879.—Nest with three fresh eggs, attached to a fork in one of the outer branches of an otinga (*Dillenia pentagyna*) tree, and about 15 feet off the ground.

"May 15th, 1880.—Three fresh eggs in a nest 20 feet off the ground, and a few yards from my bungalow, in an oorian (*Bischoffia javanica*, Bl.).

"June 5th, 1880.—Nest with three partly-incubated eggs, in one of the outer branches of a jack (*Artocarpus integrifolia*) tree, and about 15 feet off the ground.

"May 27th, 1881.—Three fresh eggs in a nest on a soom (*Marchilus odoratissima*) tree at the edge of the forest bordering the tea. The nests are deep saucers, 3½ inches in diameter, internally 1½ deep, with the sides about ¼ thick; but the bottom is so flimsy that the eggs are easily seen from below, the materials being grass, roots, and fine tendrils of creepers, especially if these are thorny, when they are used as a lining. The nest is always situated in the fork of a branch."

This bird has been exhibited in our Zoological Gardens, where it was received as long ago as 1866; in 1894 it was imported by Fockelmann, of Hamburg, but according to the late Dr. Russ is much rarer in the market than the preceding species.

WOOD-SWALLOWS (*Artamus*).

The affinity of these birds to the Drongos has been pretty generally recognised, but various authorities have also regarded them as showing affinity to the Swallows (Blyth), to the Orioles (Cabanis), and to the Starlings (Reichenow). Of late years they have not infrequently been exhibited at bird shows.

WHITE-EYEBROWED WOOD-SWALLOW (*Artamus superciliosus*).

Above smoky grey, paler on rump and tail, blackish upon the crown; lores, area encircling eye, and ear-coverts black; chin greyish-black; a white eyebrow-stripe pointed in front, spatulate at back; tail-feathers, excepting the outer ones, tipped with white; outer webs of outer feathers grey; under surface chestnut; wings below white; bill pale blue at base, black at tip;

feet dark lead-coloured; irides blackish. Female with the lores and area encircling eye duller, eyebrow-stripe less defined; throat grey; tail less distinctly tipped with white; under surface paler chestnut. Hab., New South Wales.

Gould says that this is a shy species, giving "preference to the topmost branches of the highest trees, from which it sallies forth for the capture of insects, and to which it again returns, in the usual manner of the tribe. In every part where I have observed it, it is distinctly migratory, arriving in summer, and departing northwards after the breeding season.

"The nest is most difficult of detection, being generally placed either in a fork of the branches or in a niche near the bole of the tree, whence the bark has been partially stripped. It is a round, very shallow, and frail structure, composed of small twigs and lined with fibrous roots; those I discovered contained two eggs, but I had not sufficient opportunities for ascertaining if this number was constant. Their ground-colour is dull buffy-white, spotted with amber-brown, forming a zone near the larger end; in some these spots are sparingly sprinkled over the whole surface; they have also the obscure grey spotting of those of *A. sordidus*. The eggs are rather more than eleven lines long by eight and a half lines broad."—"Birds of Australia," Vol. I., p. 153.

Mr. A. J. North says (Cat. Nests and Eggs of Birds found breeding in Australia and Tasmania, p. 48):—"It builds a round, and almost flat, scanty nest of roots and grasses—through which the eggs, in some situations, can be seen from below—in every possible position, both in the indigenous and acclimatised trees of our public parks and gardens. In Albert Park I have found no less than ten nests, each containing eggs, in a single row of pines (*Pinus insignis*) of about fifty yards in length, the tree at that time being of a uniform height of five feet; at other times the nest is placed in the horizontal fork of the branches of the eucalyptus or acacia, the broad, flat fronds of the Norfolk Island pine (*Araucaria excelsa*), and on two occasions I have found it in the leafy top of a rose-bush. The eggs are three in number, usually of a buffy-white ground-colour, blotched and freckled all over with light brown, and amber-brown markings, particularly towards the larger end. Occasionally an egg in a set is found of a dull white ground-colour, with a well-defined zone of dark amber round the larger end. The measurements of a set taken at Albert Park in December, 1870, are as follows:—Length (A) 0.9 × 0.7 inch; (B) 0.95 × 0.7 inch; (C) 0.93 × 0.67 inch."

In a note published in *The Emu*, Vol. II., p. 217, Mr. F. L. Bernier records the fact that the Wood-Swallows feed upon honey. He says:—"Two of the species (*Artamus personatus* and *A. superciliosus*) have been flocking lately on the baubinia trees, which are just now in full bloom. I watched them quite close, there being no need for the glasses, for in their eagerness to gather their breakfast of honey they crowded round me within 8ft. of my head." The writer shot some of these birds, but appears to have found only ants and one beetle in the stomachs, which (the editor points out) suggests that the birds were after insects and not honey; however, in Vol. III., p. 112, Miss Helen Bowie writes:—"I have kept two pairs of Wood-Swallows for the last seven months. They were turned out into an aviary in which there was honey for some *Meliphaqida*. No sooner were the Wood-Swallows at liberty than they made their way to the pot, and seemed to recognise it as a natural diet. At present they live principally on fruit and honey, with a little Lark food and occasional insects by way of a treat. They visit

scented flowers, but I do not know whether in search of honey or not. The brush tongue would seem to indicate that honey was in the wild state a food sometimes used, though perhaps, as in the case of some honey-eating Parrots, not necessary always to subsistence."

Five examples of this species reached our Zoological Gardens in 1866; a pair was bred in the Gardens in 1870, and one was added in 1875. In 1897 Miss Hagenbeck imported specimens, of which three went to the Berlin Gardens, and in 1899 and subsequent years specimens were regularly exhibited at our London shows and elsewhere.

MASKED WOOD-SWALLOW (*Artamus personatus*).

Upper surface deep grey, including the wings and tail; the latter tipped with white; head above sooty-black; face, ear-coverts and throat jet-black, edged below by a narrow white line; under surface delicate grey; thighs darker; bill blue at base, black at tip; feet hoary bluish-grey; irides blackish-brown. The female is rather duller than the male, with paler bill and dark grey mask. Hab. South Queensland, New South Wales, Victoria, South, West, and North-west Australia.

According to Gilbert, this species is shy and retired, never being seen but in the most secluded parts of the bush. "Its nest is placed in the upright fork of a dead tree, or in the hollow part of the stump of a grass-tree; it is neither so well nor so neatly formed as those of the other species of the group, being a frail structure externally composed of a very few extremely small twigs, above which is a layer of fine dried grasses. The eggs also differ as remarkably as the nest, their ground-colour being light greenish grey, dashed and speckled with hair-brown principally at the larger end, and slightly spotted with grey, appearing as if beneath the surface of the shell; they are ten and a half lines long by eight and a half lines broad. I found two nests in a York gum forest, about five miles to the east of the Avon River; each of these contained two eggs, which I believe is the usual number. Mr. Angas informs me that in South Australia this bird makes no nest, but places the eggs on a few bent stalks of grass in the bend of a small branch." (Cf. Gould, "Birds of Australia," Vol. I., p. 151.)

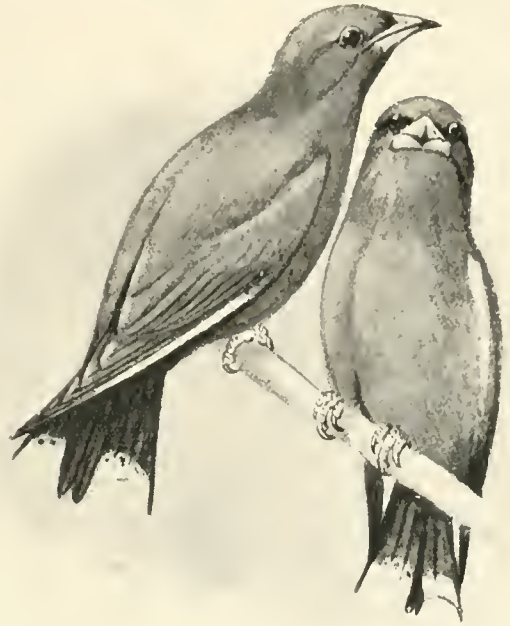
Somewhat opposed to the above is the account given in A. J. Campbell's "Nests and Eggs of Australian Birds," pp. 466-8:—"Nest.—In general similar to that of *A. superciliosus*; composed of dead branching twigs as a foundation, then green portions of shrubs, finally a goodly lining of fine rootlets, dry grass, and chiefly a green wiry grass, and situated in a bush or low branch of a tree from 1½ feet to 8 or 10 feet above the ground. Dimensions over all, 4½ inches by 3½ inches in depth; egg-cavity, 2½ inches across by 1½ inches deep." A beautiful photograph of the nest containing three eggs faces this description.

"Eggs.—Clutch, two to three; stout, oval in shape or sharply pointed at one end; texture of shell fine; surface glossy; colour, light greenish-grey, mottled and clouded, chiefly around the upper quarter, with umber and dull grey, resembling exactly those of the *A. superciliosus*. Dimensions in inches of a clutch: (1) .88 x .66, (2) .88 x .66, (3) .8 x .67.

"Observations.—This handsome Wood-Swallow and the *A. superciliosus* are probably more nearly related than any other two of the *Artami*. The fact already recorded by me of the female *A. personatus* being mated to a male *A. superciliosus* would tend to prove that assertion; besides, oologically speaking, the eggs are inseparable as far as outward appearances go. The

voices of the two species are very much alike, but the 'whamp'-like alarm note of *A. personatus* is somewhat coarser and deeper.

"I stated in a previous part of my observations on this Wood-Swallow that odd pairs accompanied the White-browed birds on their visits southwards. But the year 1895 was a most remarkable exception, when flocks of the Masked species appeared independently in Victoria. The early flocks arrive in the first week in November, or a month after the first of the White-browed birds. My son reported he had seen flocks in the vicinity of Springvale, near the Gippsland railway line. To verify his statement Mr. Gillespie and I



DUSKY WOOD-SWALLOWS.

repaired thither on the afternoon of the 30th November. We had no sooner left the station than a flock of mostly Masked Wood-Swallows rose from some low scrub, where we took two or three nests."

In an article on Wood-Swallows in *The Agricultural Magazine* for May, 1900, p. 156, Mr. Henry J. Fulljames mentions the importation of two pairs of this species, by Mr. Geo. Carrick presumably, of which he secured one pair and the other went to the London Gardens. In October of the same year Mr. Glasscoe exhibited a specimen at the Crystal Palace, the same bird being again exhibited in January and November, 1901, and February, 1902.

DUSKY WOOD-SWALLOW (*Artamus sordidus*).

"Head, neck, and the whole of the body fuliginous grey; wings dark bluish black, the external edges of the second, third, and fourth primaries white; tail bluish black, all the feathers, except the two middle ones, largely tipped with white; irides dark brown; bill blue, with a black tip; feet nearly lead-colour.

"The sexes are alike in the colouring of their plumage, and are only to be distinguished by the female being somewhat smaller in size.

"The young have an irregular stripe of dirty white down the centre of each feather of the upper surface, and are mottled with the same on the under part of the body."—Gould. Hab., "Australia (except perhaps North), and Tasmania, including islands in Bass Strait."—Campbell.

According to Gould, this species is strictly migratory in Tasmania where it arrives in October, and after rearing at least two broods departs again in a northern direction. On the continent of Australia it arrives rather earlier, and departs later. Gould observes that the Tasmanian specimens are invariably larger in all measurement and of a deeper colour.

A naturalist calling himself "Nemo" (writing in *The Australasian* of November 2, 1895) notes the dates of arrival and departure of this species in South Victoria for seven years, from which it appears that migratory flocks arrive there between August 19 and September 9 and depart between the end of April and middle of May. (Cf. Campbell, "Nests and Eggs of Australian Birds," pp. 472-3).*

Gould remarks:—"This Wood-Swallow must, I think, ever be a general favourite with the Australians, not only from its singular and pleasing actions, but from its often taking up its abode and incubating near the houses, particularly such as are surrounded by paddocks and open pasture-land skirted by large trees. It was in such situations in Tasmania that, at the commencement of spring, I first had the opportunity of observing this species; it was then very numerous on all the cleared estates on the north side of the Derwent, about eight or ten being seen on a single tree, and half as many crowding one against another on the same dead branch, but never in such numbers as to deserve the appellation of flocks. Each bird appeared to act independently of the other; each, as the desire for food prompted it, sallying forth from the branch to capture a passing insect, or to soar round the tree and return again to the same spot; on alighting it repeatedly throws up one of its wings, and obliquely spreads its tail. At other times a few were seen perched on the fence surrounding the paddocks, on which they frequently descended, like Starlings, in search of coleoptera and other insects. The form of the wing of the *Artamus sordidus* at once indicates that the air is its peculiar province; hence it is, that when engaged in pursuit of the insects which the serenity and warmth of the weather have enticed from their lurking-places among the foliage, to sport in higher regions, this species displays itself to the greatest advantage. But the greatest peculiarity in the habits of this bird is its manner of hanging together in clusters from the branch of a tree, like a swarm of bees.

The season of incubation is from September to December. The situation of the nest is much varied; I have seen one placed in a thickly-foliaged bough near the ground, while others were in a naked fork, on the side of the bole of a tree, in a niche formed by a portion of the bark having been separated from the trunk, etc. The nest is rather shallow, of a rounded form, about five inches in diameter, and composed of fine twigs neatly lined with fibrous roots. I observed that the nests found in Tasmania were larger, more compact, and more neatly formed than those on the continent of Australia.

The eggs are generally four in number; they differ much in the disposition of their markings; their ground-colour is dull white, spotted and dashed with dark amber-brown. In some a second series of greyish spots appear as if beneath the surface of the shell; their medium length is eleven lines, and breadth eight lines."—"Birds of Australia," Vol. I., pp. 144-5.

According to Mr. North (Cat. Nests and Eggs Australian Birds, p. 43) "this species breeds from September till the middle of January. The young birds are often found on the ground during December, having left the nest before being able to fly, and are unable to get back again."

About 1898 Mr. Geo. Carriek imported two pairs of this Wood-Swallow (parents and hand-reared young) which later came into the hands of Messrs. Fulljames and Fillmer. In 1899 Mr. Fulljames obtained three other pairs from the same importer. In his article on Wood-Swallows (*Avicultural Magazine*, 1st series, Vol. VI., p. 155) Mr. Fulljames remarks that "they have been kept all together in a large open cage with wire top as well as sides, and they spend quite a considerable portion of their time hanging head downwards from the top of the cage. They roost as closely as possible together, always head downwards. When I had my first pair I soon noticed that if anything was accidentally left on the top of their cage they invariably roosted directly underneath it, so their cage now is always provided with a piece of flannel, which is evidently appreciated."

Mr. Fulljames fed his birds upon an ordinary insectivorous bird-food; probably, one would suppose, that now known as "Century food."

In 1900 (May) five examples of this species reached the London Zoological Gardens. Dr. Russ says that in 1898 it was imported into Germany and reached the Zoological Gardens of Berlin.

ASHY WOOD-SWALLOW (*Artamus fuscus*).

General colour above soft ashy slate colour, the back, scapulars, and rump somewhat reddish; upper tail-coverts whitish, largely concealed by the rump-feathers; wings and tail dark bluish-ash; inner primaries and secondaries with a narrow pale terminal edging; central tail feathers narrowly, the remainder broadly tipped with whitish; lores blackish; throat somewhat dusky; breast and abdomen delicate reddish ash-coloured fading to white on under tail-coverts; bill milky blue, blackish at tip; feet dull bluish, with darker claws; iris dark brown. Female (according to Col. Legge) with the base of the mouth yellow, whereas in the male the inside is wholly black; iris paler or reddish-brown. Young, dull earthy brown on head and back with paler edges to feathers; secondaries and inner primaries broadly tipped with white; throat more dusky than in adult, blending gradually with hue of breast, which is ruddier than in adult. Hab., India generally and Ceylon.

Dr. Jerdon says that this bird "is most abundant in wooded districts, especially where palm-trees abound, more particularly the palmyra palm, from which indeed it takes several of its native names. Where they are numerous, several may be seen seated on the same branch, but they fly off independently of each other, and after a flight of some few minutes, return either again to the same perch or to another tree. At times I have seen an immense flock in the air all together, hunting for insects, and remaining on the wing for a much longer period. A small party may occasionally be seen, skimming over the surface of a tank, picking up an insect now and then, and returning to a high bough of a tree, overhanging the water. They live entirely on

* According to Mr. S. W. Jackson, they arrive in New South Wales in July or August and depart again in January or February.

insects of various kinds. I have found them most abundant in the Carnatic, the Malabar coast, the Northern Circars, and Bengal; very rare in the Deccan and Central India. To my great surprise, I found them on the sides of hills, at Darjeeling, on cleared spots up to about 4,000ft. of elevation.

"I have procured the nest of this bird, situated on a palmyra tree on the stem of the leaf. It was a deep cup-shaped nest, made of grass, leaves, and numerous feathers, and contained two eggs white with a greenish tinge, and with light brown spots, chiefly at the larger end. I see that Mr. Layard procured the nest in Ceylon, where this bird is common, in the head of cocoa-nut trees, made of fibres and grasses; and it was probably the nest of this bird that was brought to Tickell, as that of the Palm Swift (*Cypselus batasiensis*).

"Its flight is elegant and Swallow-like, a few rapid strokes of the wing alternating with a gliding flight with outspread wings, and often in circles, or, when in close pursuit of an insect, rapid and direct. Its cry, which it frequently utters, both when seated and in flight, is plaintive, very like that of the Shikra (*Micronis badius*) but more subdued."—"Birds of India," Vol. I., pp. 441-2.

Colonel W. V. Legge says:—"It is exceedingly fond of scattered groves of palmyras close to the sea-shore, resting on the fronds of these trees when not hawking for insects, and roosting on them at night. It associates in small flocks, perching together in closely packed rows, and sallying out in twos and threes after its food, which it catches on the wing, circling round, and sometimes mounting, with a buoyant flight, high in the air, where it will occasionally soar for a considerable time with outstretched wings. It is always of a most sociable nature; and when a flock is scattered by the shooting of one of their number, they speedily reunite on a neighbouring tree. It is partial to the vicinity of water, as in hawking above the surface of tanks and lakes it finds an abundance of food. In its mode of feeding it resembles the Drongo-Shrikes, beating its prey (which consists largely of beetles) to death on its perch before it swallows it. Its ordinary note resembles somewhat that of the Red-breasted Swallow."

"The breeding-season of the Wood-Swallow is in February and March, both in the north and central districts. It builds in the former region, to a great extent, in the palmyra palm, placing its nest between the bases of the fronds. A nest which I found so situated in Erativoe Island was composed of grass and roots, massive in exterior, and rather slovenly put together; the interior was a shallow cup about 2½ in. in diameter, and contained three nestlings. Mr. Bligh informs me that he has found the nest in the hole of a tree situated in a coffee-plantation.

"Mr. Cripps . . . writes of some nests taken in date-trees (*Phoenix sylvestris*); they were built at the junction of the leaf-stem and trunk, though in two instances they were placed on a ledge from which all the leaves had been removed to enable the tree to be tapped for its juice. In every instance the nest was exposed, and if any bird, even a Hawk, came near, the courageous little fellows, says Mr. Cripps, would drive it off. 'The nests were shallow saucers, made of fine twigs and grasses, and with a lining of the same, and contained two to four eggs each.'—"Birds of Ceylon," Vol. II., pp. 668-9.

This species was exhibited for the first time at the London Zoological Gardens on March 29th, 1903; being a common bird both in India and Ceylon it is very likely to appear from time to time in the bird-market.

SHRIKES (*Laniidae*).

The Shrikes or Butcher-birds were placed by Seebohm near to the Crows, but generally they are placed nearer to the Flycatchers. They are birds of somewhat predaceous habits with powerful bills, short thick mandibles, of which the upper one has the culmen or ridge curved and terminating in a well defined hook, preceded on the cutting edge by a slight depression, behind which is a prominent wedge-shaped tooth; the nostrils are oval, lateral, and basal, and there are well-marked rictal bristles as in the Flycatchers. Being more or less predaceous, their food in captivity should be varied with fur or feather, small reptiles or batrachians in addition to insects; raw butchers' meat should be avoided if possible.

INDIAN GREY SHRIKE (*Lanius lahtora*).

Above grey; paler on rump and upper tail-coverts; larger scapulars almost white; wing-coverts black, the lesser coverts broadly edged with grey; primaries with the basal half white, the terminal half black; innermost secondaries black tipped with white, the remainder tipped and bordered with white, which occupies the greater part of the inner webs; central tail-feathers black with narrow white tips, the remainder white at base, bordered externally and broadly tipped white, the two outermost pairs having only the shaft black; a black frontal streak which extends backwards, enclosing the eye, above the ear-coverts, to the sides of neck; above it an ill-defined white eyebrow-stripe; body below pure white; bill black; feet dark horn-coloured; irides hazel.

No difference of plumage is recorded for the female, and the sexual distinctions in the bills of Shrikes are slight; such as they are, however, they are worth noting, the bill of the female being very slightly narrower at the base and broader towards the tip than in the male. Hab., India and Afghanistan, not extending northward beyond the great mountain ranges (*Gadow*).

Though nearly related to the European Great Grey Shrike, this bird differs in its black forehead and the white on the secondaries. Jerdon ("Birds of India," Vol. I., p. 401) gives the following account of it:—"It affects chiefly low, thin, and thorny jungle, or plains where a few low trees or bushes are sparingly sprinkled. It is not often found in cultivated ground, or near villages. It has the usual habits of the tribe, sitting on top of some low tree, on the watch for a cricket, a locust, or for some young or sickly bird to come near. It flies low, near the ground, from one tree to another, and it has a harsh grating cry, but can also sing sweetly; and, it is said, imitates the song of other birds to bring them near. Mr. Philipps states that he has seen it capture small birds; and that, in the Northwest, it is occasionally trained to do so."

"I have seen the nest and eggs on several occasions, from February to May. The nest is rather large, deeply cup-shaped, made of twigs, roots, etc., and lined with hair or cotton, and the eggs, three to five in number, are dull greenish-white, with a few spots and blotches of greenish-brown and light reddish-brown."

In the second edition of Hume's "Nests and Eggs of Indian Birds," Vol. I., pp. 306-7, we read:—"The Indian Grey Shrike lays from January to August, and occasionally up to October, but the majority of my eggs have been obtained during March or April.

"It builds, generally, a very compact and heavy, deep, cup-shaped nest, which it places at heights of from 4 to 10 or 12 feet from the ground in a fork, towards the centre of some densely growing thorny bush

or moderate-sized tree, the various carounders, capers, plums, and acacias being those most commonly selected. "As a rule it builds a new nest every year, but it not infrequently only repairs one that has served it in the previous season, and even at times takes possession of those of other species.

"The nest is composed of very various materials, so much so that it is difficult to generalise in regard to them. I have found them built entirely of grass-roots, with much sheep's wool, lined with hair and feathers, or solidly woven of silky vegetable fibre, mostly that of the putsun (*Hibiscus cinnabarinus*), in which were incorporated little pieces of rag and strips of the bark of the wild plum (*Zizyphus jujuba*); but I think that most commonly thorny twigs, coarse grass, and grass-roots form the body of the nest, while the cavity is lined with feathers, hair, soft grass, and the like.

"Generally the nests are very compact and solid, 6 or 7 inches in diameter, and the egg-cavity 3 to 4 in diameter, and 2 to 2½ in depth, but I have come across very loosely built and straggling ones.

"They have at times two broods in the year (but I do not think that this is always the case), and lay from three to six eggs, four or five being the usual number."

Dr. Russ does not mention this species; but the London Zoological Society purchased an example in November, 1890.

Mr. E. G. B. Meade-Waldo says (*The Avicultural Magazine*, N.S., Vol. III., p. 45):—"I have repeatedly reared the young of Grey Shrikes, notably *Lanius algeriensis*, *L. dealbatus*, and *L. homiteicurus*, and find them most docile, affectionate, and interesting. I fancy they require a good deal of room, or at any rate a certain amount of liberty, and one I had in England used to fly at liberty for hours and hunt for himself; he would, however, come a quarter of a mile to a certain whistle."

BAY-BACKED SHRIKE (*Lanius vittatus*).

Above grey-whitish, deeper grey on neck which shades off into deep chestnut or maroon on the mantle and scapulars; wings black, the least coverts with broad grey borders; basal half of primaries pure white; secondaries with narrow whitish tips; four central tail-feathers black tipped with white, the remainder also white at the base, increasing in extent outwardly, the outermost feather being almost entirely white; a broad frontal-band passing into a streak enclosing the eye and continued to the nape, black; cheeks and throat very pale buffish; body yellow white, more or less buff, paler in the centre; flanks more or less chestnut. The female is thus described by Dr. Gadow:—"Head ashy grey, shading off into dull rufous on the back and scapulars; upper tail-coverts ashy grey; tail dull brown, the feathers edged and tipped with rufous buff, the tips broader on the outer feathers, the outermost pair entirely pale rufous buff; quills blackish, rather broadly edged with sandy rufous, nearly obsolete on the primaries, which have the same white speculum as the male; no black frontal band; forehead whitish, the lores tipped with dusky brown; ear-coverts dull brown; cheeks and under surface of body creamy white, washed with rufous on the flanks." According to this author's measurements the female has a shorter wing and tail than the male. Hab., Indian Peninsula, extending westward into Afghanistan and Baluchistan.

Jerdon ("Birds of India," Vol. I., p. 405) says of this bird:—"It frequents low thorny jungle, but is also found in groves, gardens, hedgerows, etc. It has the usual harsh cry of its tribe, but can also utter some very pleasing notes. I never found its nest myself, and it retires from the more open parts of the Deccan to

breed. Theobald obtained the nest, which was a compact structure, placed in the fork of a thorny tree, made of fibres, silk, spiders' web, lichens, cocoons, etc., and lined inside with down. This was in May and June."

In the second edition of Hume's "Nests and Eggs" we read:—

"The Bay-backed Shrike breeds throughout the plains of India and in the Sub-Himalayan Ranges up to an elevation of fully 4,000 feet.

"The laying-season lasts from April to September, but the great majority of eggs are found during the latter half of June and July; in fact, according to my experience, the great body of the birds do not lay until the rains set in.

"The nests are placed indifferently on all kinds of trees (I have notes of finding them on mango, plum, orange, tamarind, toon, etc), never at any great elevation from the ground, and usually in small trees, be the kind chosen what it may. Sometimes a high hedge-row, such as our great Customs hedge, is chosen, and occasionally a solitary caper or stunted acacia-bush.

"The nests (almost invariably fixed in forks of slender boughs) are neat, compactly and solidly built cups, the cavities being deep and rather more than hemispherical, from 2.25 to fully 3.5 inches in diameter, and from 1.5 to 2 inches in depth. The nest-walls vary from 0.5 to 1.25 inch in thickness. The composition of the nest is various."

"Elsewhere I have recorded the following note on the nidification of this species:—

"This bird, or rather birds of this species, have been laying ever since the middle of April, but nests were then few and far between, and now in July they are common enough. The nest that we had just found was precisely like twenty others that we had found during the past two months. Rather deep, with a nearly hemispherical cavity: very compactly and firmly woven of fine grass, rags, feathers, soft twine, wool, and a few fine twigs, the whole entwined exteriorly with lots of cobwebs; and the interior cavity about 1½ inch deep by 2½ in diameter, neatly lined with very fine grass, one or two horsehairs, shreds of string, and one or two soft feathers. The walls were a good inch in thickness. The nest was placed in a fork of a thorny jujuba or ber tree (*Zizyphus jujuba*), near the centre of the tree, and some 15 feet from the ground. It contained four fresh eggs, feebly-coloured miniatures of the eggs of *L. lahtora*, which latter so closely resemble those of *L. excubitor* that if you mixed the eggs you could never, I think, certainly separate them again" (pp. 311-312). The author then proceeds to describe the eggs in detail, but as we are all familiar with Shrikes' eggs, and those of *L. lahtora* have already been described, it seems hardly worth while to quote further.

This pretty little Shrike was exhibited for the first time in the London Zoological Gardens in March, 1903.

FOUR-COLOURED SHRIKE (*Laniarius quadricolor*).

"Adult Male.—Above crown, ear-coverts, and all the upper surface of the body, including the wing-coverts, the inner secondaries, and the outer webs of the remaining quills, deep grass-green; inner webs of quills dusky; two centre tail-feathers green, with black ends, remaining tail-feathers black, their bases tinged with green; a line from the bill over the eye orange; lores and a broad streak through the eye black; cheeks and throat scarlet, the bases of the feathers yellow; below the throat a broad pectoral band of black, continuous on either side with a narrow streak of black which originates from the base of the lower mandible; remaining lower surface yellow, tinged with scarlet on

the breast and under tail-coverts; the thighs, sides of body, and under wing-coverts green; lower surface of quills ashy, paler on the inner margins. Iris brown; bill black; legs and feet lead-colour." (W. L. Slater.)

Mr. Slater says that the female resembles the male in plumage; but Dr. Gadow describes it as follows:—

"All the underparts are green; the tail uniform olive-green; the head wanting the black loreal and lateral stripes, the black crescent being likewise absent; throat vermillion; remainder of the underparts of the body olive-yellow; under tail-coverts dull yellow; sides of breast and flanks green; the black collar on the chest of the male is represented merely by a few blackish tips on some of the feathers; bill and feet brown; lower mandible paler." He also describes the young plumage in both sexes, so that it seems impossible that his female can have been anything but an adult bird. Hab., South-eastern Africa.

An excellent figure of the male (Plate XI.) is given in Sharpe's edition of Layard's "Birds of South Africa," from which I extract the following note by Mr. Thomas Ayres:—"These birds inhabit the dense bush along the coast, never leaving it; they creep about the under-wood in search of their food, and are easily obtained by those who can imitate their call, for they will immediately answer, and come to the sportsman if within hearing. On perceiving their mistake they make a low churring noise, as they do also if they see a cat, snake, panther, or other beast of prey." (p. 381.)

In Stark and Slater's "Birds of South Africa," Vol. II., p. 36, are the following notes on the habits from the pens of Messrs. Woodward and Millar:—"It does not sing, but its cheerful cry, 'kong-kong-koit,' is one of the pleasantest of bush sounds. It is particularly partial to dense thickets, where, when it is disturbed, it makes a croaking noise, and it is difficult to shoot it at such close quarters without destroying its plumage. This Shrike feeds principally on insects, but the natives tell us that it sometimes attacks and kills the small Bush-Wrens, and that they have known them to eat the flesh of birds caught in their snares."

"They breed early in November, and although plentiful, their nests are rarely found. They build a loosely-constructed nest of twigs lined with dry leaf-stalks, generally placed four or five feet from the ground, in a thicket or among some dried twigs or sticks.

"The clutch consists of two or three pretty white eggs delicately marked with grey-brown streaks and splashes, principally at the obtuse end, and measuring about .83 by .58.

"The nest being loosely put together, enables one to see through it, and the eggs resembling light and shade renders detection more difficult, which is probably the reason they are not more frequently discovered. I have hunted for hours before spotting the nest, and then wondered how it was possible to have passed it over."

Beautiful and highly desirable as this Shrike is, Dr. Russ is only able to record one instance of its importation, the specimen having reached the London Zoological Gardens in 1882, but with the increased interest taken in aviculture it is hardly probable that such a state of things can long continue.

Why the Green Cochoa is placed among the Shrikes in the Zoological Society's list I am unable to explain. According to Hume and Oates it is a true Thrush; its nidification seems to have been imperfectly known when the second edition of the "Nests and Eggs of Indian Birds" was known. It is hardly likely ever to become a well-known cage-bird, although the Zoological Society purchased a specimen in April, 1884.

The Waxwings are not very desirable cage-birds, on account of their greed and the consequent necessity for

providing them with a small aviary. The North American Cedar-bird is, moreover, so nearly related to the European Waxwing that it seems hardly worth while to devote space to a description of it, more especially now that the birds of the United States are so strictly preserved and consequently rare in the market.

FLYCATCHERS (*Muscicapule*).

Numerous as these birds are, they are not easy to feed, and consequently are hardly ever imported; but one species which has reached us in recent years from Australia is so entirely charming and has been so thoroughly studied in captivity, that it would be a positive sin to omit it.

BLUE WREN (*Malurus cyaneus*).

Male in summer with the crown, ear-coverts and a lunar-shaped mark on upper part of back light metallic blue; lores, line over eye, occiput, scapulars, back, rump, and upper tail-coverts velvety-black; throat and chest bluish-black, bounded below by a band of velvety-black; tail deep blue, indistinctly barred with a deeper hue and finely tipped with white; wings brown; under surface buffish white; flanks tinged with blue; bill black; feet brown; irides blackish-brown. (Gould.)

In winter the male loses all its bright colouring and much more closely resembles the female. The latter is brown above, including wings and tail; the lores and a circle enclosing the eye reddish-brown; under surface brownish white; bill reddish brown; feet flesh-brown. Hab., "South Queensland (?), New South Wales, Victoria, and South Australia." (Campbell.)

Gould says that this species "gives preference to those parts of the country which (are) thinly covered with low scrubby brushwood, and especially in localities of this description which are situated near the borders of rivers and ravines. During the months of winter it associates in small troops of from six to eight in number (probably the brood of a single pair), which continually traverse the district in which they were bred. At this period of the year the adult males throw off their fine livery, and the plumage of the sexes then becomes so nearly alike that a minute examination is requisite to distinguish them. The old males have the bill black at all seasons, whereas the young males during the first year, and the females, have this organ always brown; the tail-feathers also, which with the primaries are only moulted once a year, are of a deeper blue in the old male. As spring advances, the small troops separate into pairs, and the males undergo a total transformation, not only in their colour, but in the texture of their plumage; indeed, a more astonishing change can scarcely be imagined. This change is not confined to the plumage alone, but extends also to the habits of the bird; for it now displays great vivacity, proudly shows off its gorgeous attire to the utmost advantage, and pours out its animated song unceasingly, until the female has completed her task of incubation, and the craving appetites of its newly-hatched young have called forth a new feeling and given its energies a new direction.

"During the winter months no bird can be more tame and familiar; for it frequents the gardens and shrubberies of the settlers, and hops about their houses as if desirous to court, rather than shun, the presence of man; but when adorned with its summer plumage, the male becomes more shy and retiring, appearing to have an instinctive consciousness of the danger to which his beauty subjects him; nevertheless they will frequently build their little nest and rear their young in the most populous places. Several broods are reared annually in the Botanic Garden at Sydney, and I saw a

pair busily employed in constructing their nest in a tree close to the door of the Colonial Secretary's Office. The short and rounded wing incapacitates it for protracted flight, but the amazing facility with which it passes over the surface of the ground fully compensates for this deficiency; its mode of progression can scarcely be called running, it is rather a succession of bounding hops, performed with great rapidity; while thus employed its tail is carried perpendicularly, or thrown forward over the back; indeed, the tail is rarely, if ever, carried horizontally.

"The breeding-season continues from September to January, during which period two, if not three, broods are reared, the young of one being scarcely old enough to provide for themselves before the female again commences laying. Independently of rearing her own young, she is also the foster-parent of the Bronze Cuckoo (*Chrysococcyx lucidus*), a single egg of which species is frequently found deposited in her nest; but by what means, is . . . unknown.

"The nest, which is dome-shaped, with a small hole at the side for an entrance, is generally constructed of grasses, lined with feathers or hair. The site chosen for its erection is usually near the ground, in a secluded bush or tuft of grass. The eggs are generally four in number, of a delicate flesh-white, sprinkled with spots and blotches of reddish-brown, which are more abundant and form an irregular zone at the larger extremity; they are eight lines long by five and a half broad. The song is a hurried strain, somewhat resembling that of the Wren of Europe."—"Handb. Birds Austral.," Vol. I., pp. 318-20.

Campbell ("Nests and Eggs of Australian Birds," pp. 163-168) shows that some of Gould's observations require modification. He thus describes the nest:—"Globular, side-top entrance; usually composed of old greyish weather-beaten grasses with an admixture of cocoons: lined inside with fine yellowish-coloured grass and finally with feathers, hair, down, seed-vessels, etc." He gives the number of eggs in a clutch as "three to four, occasionally five."

Furthermore he observes that "while the male Wrens do change their dress," they do not "retain it for a short period," but for eight or nine months of the year, or excepting the moulting season. He also quotes Mr. Holroyd's opinion that this species is a polygamist and has from two to four wives.

Mr. Reginald Phillips, who secured a male and two females of this charming species in 1902 from a consignment which reached this country in May, was successful in breeding the species in his garden aviary, where I had the great pleasure of seeing them flying about. From the manner in which the unpaired female was persecuted by the pair which bred he was inclined to discredit the idea of polygamy in this species. He describes the song as rippling twittering and insignificant, but bearing a family resemblance to that of our Wren.

"They are very sensitive to cold; their delight when the sun shines into their cage is unbounded.

"They seem to be wholly insectivorous."

A charming plate illustrates Mr. Phillips' second paper upon this species, in which the irides are coloured yellow, which seems again to put the late Mr. Gould in the wrong, or—is this an artistic licence, like the caterpillar in the picture? (vide *The Avicultural Magazine*, n.s., Vol. I., pp. 15-19).

I presume that, in captivity, Blue Wrens would pick out tiny fragments of egg, ants'-eggs, and dried flies from the usual soft-food mixture; but in an outdoor aviary like that in which Mr. Phillips bred the species,

doubtless numerous living insects could be captured by the birds.

In addition to the Blue Wren there is another lovely Flycatcher which has of late years appeared more than once at our bird shows, and therefore must not be ignored:—

RUFIOUS-BELLIED NILTAVA (*Niltava sundara*).

Forehead, entire side of head, and throat black; the latter edged at side with blue continuous with that of the nape, the whole crown and nape being glistening bright blue; upper back black, as well as the inner webs of the wing and tail-feathers; otherwise both wings and tail are blue; breast, abdomen, and under tail-coverts bright rusty orange, slightly paler on the latter; bill black; feet flesh-brownish; irides dark brown. Female: Above olivaceous brown; wings dusky, edged with rust-red; tail rust-red; below ashy-brown; a white crescentic bib across front of breast, the points of which join a narrow lavender-blue streak edging the side of neck. Hab., Himalayas, Arrukan, Tenasserim, and Western China.

Jerdon says of this species:—"It is very common about Darjeeling, from 6,000 feet to 8,000 feet. It frequents thick, bushy ground, often near water, is shy and wary, seldom showing itself, but now and then I have seen it seated on a fallen tree or stump, or even a paling by the wayside. It feeds chiefly on insects, which it procures on the ground, generally returning to the same perch whence it came, but it also picks insects off the leaves and branches. It is seldom seen high up on trees. Hodgson says that it sometimes eats berries and seeds in winter. I several times procured the nest of this bird, situated on a bank, or in the cleft of a rock, or against the fallen stump of a tree. It is loosely made of moss, lined with a few black fibres; and the eggs, three or four in number, are reddish-white, with the large end nearly covered with minute brick-red spots, forming a large patch of dull brick-red. The eggs are remarkably long-shaped.

"The song is said to be one loud and simple note, frequently repeated. I have not heard it that I am aware of, and always considered it a very silent bird."—"Birds of India," Vol. I., p. 474.

From Hume's "Nests and Eggs of Indian Birds," 2nd ed., Vol. II., p. 20, I quote the following:—"The Rufous-bellied Niltava breeds everywhere in the Himalayas, at any rate, from Darjeeling to the valley of the Beas (I have no record of its breeding further west), from the middle of April to the middle of May. It places its nest in some rocky ledge or crevice, or in or about some decayed stump or fallen trunk.

"A nest of this species, which I took near Kote-gurh on May 15th was a mere pad of moss about 5 inches in diameter and 1½ inches in thickness, with a very broad, shallow depression in the centre. In and about the inner surface of this depression a certain amount of very fine silky fur and one or two downy feathers were interwoven, making a kind of lining. The nest was placed in a hollow at the base of an aged oak. Four is, I believe, the normal number of the eggs."

In *The Avicultural Magazine*, n.s., Vol. I., pp. 24-26, Mr. Russell Humphreys gave an account of a male of this species in his possession, which appears to have been brought home by Mr. E. W. Harper. According to this gentleman, the song, so far as could be judged by its recording, resembled the warble of the male Red-backed Shrike, and some of the calls those of the English Robin. An excellent coloured plate of both sexes appeared in the succeeding volume.

Mr. Dewhurst has exhibited this species at the Crystal Palace, and it appears not to be the same speci-

men as that owned by Mr. Humphrys, so that it is quite likely that others may yet be imported. Fruit and insects are the chief articles of diet.

CHAPTER VII.

WHITE-EYES (*Zosteropida*).

This group of birds has been referred to the Tits (*Paridae*), Honey-eaters (*Meliphagidae*) and Sunbirds (*Nectariniidae*), but Dr. Gadow has shown that the structure of the tongue removes it from the first and third and from most of the forms usually included in the second; therefore it has been thought better to consider *Zosterops* as typical of a distinct family. The species are characterised by modest colouring, usually olivaceous or mouse-coloured above and yellow below, the eye surrounded by a conspicuous ring of white feathers which induced the dealers to give them the trivial name of Spectacle-Birds.* They are small, active little creatures, vaguely recalling our Willow-Warbler and its allies, and feeding upon insects and fruits. In captivity they do well on the same treatment as that provided for other delicate fruit-eating insectivores.

Although in 1872 the Zoological Society of London received six examples of the New Zealand form *Zosterops lateralis*, presented by Mr. Bills in August, it is unlikely that this bird, if distinct, will appear again in the London market. The destruction of the native birds by cats and other vermin imported into the islands and the strict laws for the preservation of such birds as have not been exterminated, militate against the chance of British aviculturists seeing much of this or others of the birds of New Zealand which formerly were occasionally brought home. Dr. Russ regards *Z. lateralis* as a mere synonym of *Z. dorsalis*, but the List of the Zoological Society records both as distinct species.

THE GREY-BACKED WHITE-EYE (*Zosterops carulescens*).

"Crown of the head, wings, and tail olive; back dark grey; eyes surrounded by a zone of white feathers, bounded in front and below with black; throat, centre of the abdomen, and under tail-coverts greyish white with a slight tinge of olive; flanks light chestnut brown; upper mandible dark brown; under mandible lighter; irides and feet, greyish brown. In some specimens the throat and sides of the head are wax-yellow, and the flanks are only stained with chestnut brown."—Gould.

The sexes are said to be alike in plumage, but, from what I have seen of *Zosterops*, I should judge that the female would be slightly paler in all its hues and a little smaller. According to Finsch, the female of *Z. lateralis* is paler in the green and grey of the upper parts, and I have noticed that the female of the Chinese species (and I think of this bird also) showed a less vivid yellow on the underparts. Without question, the female has a longer bill with less arched culmen.

Mr. Gould gives the following account of this species, which I cannot do better than quote verbatim:—"This bird is stationary in all parts of Tasmania, New South Wales, and South Australia, where it is not only to be met with in the forests and thickets, but also in nearly every garden. It even builds its nests and rears its young in the shrubs and rose-trees bordering the walks. Among the trees of the forest the beautiful *Leptospermum* is the one to which at all times this species evinces a great partiality.

"Its flight is quick and darting, and when among the branches of the trees it is as active as most birds, prying and searching with scrutinising care into the leaves and flowers for the insects upon which it feeds. It is sometimes seen singly or in pairs, while at others it is to be observed in great numbers, on the same or neighbouring trees. It is of a familiar disposition, and utters a pretty and very lively song.

"The breeding season commences in September and continues to January. The nest is one of the neatest structures possible; it is of a round, deep, cup-shaped form, composed of fine grasses, moss, and wool, and most carefully lined with fibrous roots and grasses. The eggs are usually three in number, of a beautiful uniform pale blue, eight and a half lines long by six broad."—"Handbook Birds of Australia," Vol. I., pp. 587-8.

I quote the following from Campbell's "Nests and Eggs of Australian Birds," pp. 347-8:—"Though an orchard pest, the little White-Eye is a very interesting species, while its small shapely nest, with its beautiful bluish-green eggs, are amongst the models of nidology."

"Gould regarded it as a stationary species. I have found their pretty nests in the coastal scrubs during summer, while in winter the birds in small companies are frequently seen darting about our gardens, where they are specially fond of the heating berries of the pepper-tree (*Schinus*). When threading the branches, feeding, a bird occasionally utters a soft, sweet, chattering warble, as if singing inwardly, or to itself. The well-known call or alarm note is a short, feeble, whistle-like sound, often repeated.

"While mentioning pepper-trees, I may mention that my son Archie was once watching White-Eyes feeding in our tree, when a Sparrow (introduced) intruded. One of the White-Eyes, with his sharp little beak, made a lunge at the Sparrow, piercing it to the heart, so that it immediately fell dead beneath, and was brought to me for examination."

"My friend Mr. Ed. D'Ombra presented me with three White Eyes, which he trapped in his garden. They are fed on ground sweet biscuit and fruit, and are now thriving in the aviary with a pair of Canaries."

It appears that although this species is rather an annoyance to fruit-growers, from its love of cherries, which it probes with its sharp bill in order to feed on the pulp, it is nevertheless a most valuable friend to the gardener from the quantities of blight and other small insect pests which it devours.

In confinement this bird sings rather prettily; it is easily kept, being fed upon ripe orange or over-ripe pears (even sweet apple), and sweet-water grapes split open; also potato chopped up with yolk of egg and any good insectivorous bird-food slightly damped. It will also do well for a time on moistened sponge cake and fruit.

INDIAN WHITE-EYE (*Zosterops palpebrosus*).

In colouring it is olive-green above, the throat and fore-chest bright yellow, belly white in the middle, flanks greyish, thighs and under tail-coverts yellowish, bill blackish, feet leaden grey, a circle of white feathers round the eye, the iris pale brown. Hab., India, Ceylon, and Tenasserim.

In its wild state this species may be seen clinging to flower-stalks, and in Ceylon is said to affect the tulip-trees in the principal street of the Fort at Colombo; it feeds apparently not on the nectar of flowers, but on the tiny insects which are found therein, and it is

* This is, of course, a translation of the German name Brillenvogel.

* Three to four according to Campbell.

also stated to eat the fruit of a small Indian blackberry. It is moderately gregarious, but extremely active, and as it flits hither and thither it is said to twitter incessantly. The nest is a neat deep cup, usually fixed in the fork of a berry or other low bush; the eggs, two to three in number, are greenish-blue, or pale blue inclining to whitish.

The song, according to Dr. Russ, resembles that of the Grasshopper Warbler; the species was bred by Mr. Oesterlin, of Mannheim, but not successfully, one young one being hatched from the first nest, which died when eight days old. A second nest was built, and three eggs laid, when the hen died, and the cock bird wearied of the task of incubation after four days. Probably a garden aviary in a sunny position would be the most suitable place in which to attempt to breed *Zosterops*.

This bird appears to have been more freely imported into Germany than England.

CHINESE WHITE-EYE (*Zosterops simplex*.)

Above it is olive-green, somewhat tawny on the crown; chin and throat, as well as under tail-coverts,



THE CHINESE WHITE-EYE.

bright yellow, remainder of under parts white, greyish on the flanks; lores blackish, a ring of white feathers encircling the eye; iris amber, bill blackish, feet leaden grey. Hab., China, Hainan, and Formosa.

Mr. E. W. Styan ("On the Birds of the Lower Yangtse Basin," *The Ibis*, 1891, p. 352) says:—"I met with large flocks during the last days of October, when it was probably preparing to move south. A pair nested in a garden at Kiukiang in June—a small cup-shaped nest, hung in a bush, about 4ft. from the ground. I did not see the eggs."

Mr. J. C. Kershaw ("On the Birds of the Quangtung Coast," *The Ibis*, 1904, p. 236) says:—"Very common, moving about the country in little flocks. Resident, and nesting about end of April."

Messrs. La Touche and Rickett ("On the Nesting of Birds in Fohkien," *The Ibis*, 1905, p. 31) give more information:—"Common and resident on the low grounds, but apparently rare on the higher levels."

"The nests vary a good deal in the amount of materials employed in the construction, some being little more than a frail network of fine dry grass bound together and secured to the supporting twig by cobwebs, while others are quite substantial little cups of moss, fine dry grass, roots, and fibres. They are either slung like a hammock in the fork of a twig or attached to the side of one. They measure about 2in. in diameter."

"The eggs are pale greenish blue, and average .60 x .47 in. There are three or four in a clutch."

"Some caged birds of this species kept by La Touche became grey above in the place of green; the reddish flanks turned deeper in shade, while the yellow throat faded almost to white."

Of my pair, referred to below, which I received about 1894 or 1895, the female died on December 12th, 1898, as

the first volume of my "Foreign Bird-Keeping" was preparing for the press. At the time of her death all the orange tinting had disappeared from the forehead and throat, the latter and front of breast having become pale primrose, the flanks also had become a little deeper in tint, as noted by Mr. La Touche. I feel certain that when they first came into my hands the sexes were much more alike and that they do not naturally differ so strikingly as shown in my skins. The male died about a year after it came into my possession, and therefore was presumably normal in colouring.

Although unnamed until 1862, this is the most freely imported of all the "White Eyes" or Spectacle-birds, yet Dr. Russ does not recognise any imported Chinese species.

Mr. Joseph Abrahams generously presented me with my pair of *Zosterops*, which, at the time, he told me were Chinese Spectacle-birds, and the day I received them I nearly lost them both, owing to their having taken the earliest opportunity of having a downright good bath. They came out of it shivering and apparently with only a few scattered strings sticking on a naked body in place of plumage. The male tried to get up the wires, then suddenly turned faint, hung backwards from his claws, and fell gasping on the sand. I picked up both birds, held them in my hands until they were a little warmer, when the hen began to struggle, so I released her, and she was soon on the perch, combing out her straggling feathers. The cock seemed little, if at all, better, so I put him into a small travelling cage, and stood it near the fire. Presently he got on the perch, and a minute later had a sort of fit. I snatched up the cage, and found it too warm, so took out the bird and held it in my hand. Its head hung sideways, with the bill wide open and the eyes shut. Presently the bill closed with a snap, and the claws clutched my little finger. I thought the bird was at its last gasp, when suddenly the head was lifted, the eyes opened, and the bird began to look about. I now took it out, and placed it on the perch beside its mate, who began to preen its feathers. Half an hour later both birds were lively as ever. One thing specially noticeable about these birds is that the process of moulting is so gradual as to be practically imperceptible. The birds, whether moulting or not, are always, to all appearance, in the pink of perfection.



THE WHITE-EYE.

This is the more extraordinary as I had been led to believe that during their moult they became perfectly bare of feathers, dropping the whole crop simultaneously.

It is rare to hear the song of this bird, though one is familiar with its excited, reedy *tsip, tsip, tsip*, repeated as it flits about its cage; this is doubtless its call-note. The true song I never heard until February,

1898, when my bird sang a clear Cicada-like trill, not unlike the performance of our Grasshopper Warbler, but less prolonged.

JAPANESE WHITE-EYE (*Zosterops japonica*).

Nearly related to the preceding species, but with the breast and flanks pale chestnut-brown instead of pale smoky grey. Hab., Japan only.

Seebohm ("Birds of the Japanese Empire," p. 68) says:—"The Japanese White-Eye is a resident in all the Japanese Islands, and is peculiar to Japan. It is not very common in Yezo, but was obtained at Hakodadi as long ago as 1853."

"The nest of the Japanese White-Eye is a beautiful structure composed entirely of moss, patched outside with large pieces of lichen, and lined inside with horse-hair. It is rather flat in shape, and is evidently a ground nest." (Jouy, Proc. United States Nat. Mus. 1883, p. 288.) Eggs in the Pryer collection are unspotted bluish white, of the dimensions of full-sized Willow-Warbler's eggs.

According to Russ, Miss Hagenbeck imported a single example of this species: then a pair reached the Berlin Zoological Gardens in 1892; later in 1895 G. Bosz of Cologne imported a great number into the trade. He adds the following notes of interest to the general reader:—"Professor Dr. Brauns of Tokio says that the species may be found at all times in Central Japan, and as a migrant it associates especially with the swarms of different kinds of Titmice. This also Blakiston and Pryer had maintained, as they had noticed the species as a common bird in winter in the plains. "It sings," writes Dr. Brauns, "if not very loud, yet charmingly, and in the home is accounted one of the best and most perfectly tameable household companions. Naturally its upkeep requires animal matter as food, but one can buy this almost anywhere in Japan as a prepared mixture. The latter, I am told, is prepared mainly from crayfish—which are not eaten here—and perhaps it is as near as one can get to an insectivorous food-mixture. This Spectacle-bird consequently is one of the most abundant cage-birds, continually offered for sale in all shops, although it is not yet one of the most admired of birds."

It seems hardly likely that crayfish would form the basis of a mixture for insectivorous birds; but what other translation one can give to the term "river-crabs" I don't know. It is far more likely that the mixture consisted largely of the so-called water-boatmen to which the fancy name of "dried flies" has been given by bird-caterers.

CAPE WHITE-EYE (*Zosterops capensis*).

Above olive-green, yellowish on rump and upper tail-coverts; flights and tail-feathers brown, washed externally with olive; forehead olivaceous yellow; lores black; the usual white ring of feathers round eye; ear-coverts and sides of face green; cheeks and throat bright yellow, changing to pale brown on breast and abdomen; sides greyish, flanks fulvous; under tail-coverts bright yellow; axillaries and under wing-coverts yellowish white; bill and feet bluish-grey, the metatarsus yellowish; iris brownish-yellow. Female said to resemble the male, probably a trifle paler and with more slender bill. Hab., South Africa.

I take the following notes on the habits of this bird from Stark and Sclater's "Birds of South Africa," Vol. I., p. 303:—"The common White-Eye, when not breeding, is invariably in small family parties, consisting of the parent-birds and the young of the preceding season, or frequently, of several family parties conjoined. They generally attract attention by the somewhat sharp

'chirp' that every individual bird constantly utters both while feeding and when flying from tree to tree. They are, as a rule, extremely tame, feeding undisturbed within a few feet of an observer, diligently hunting over the leaves and twigs, and peering into the blossoms in search of small larvae and insects, and especially of some of the scale-insects (*Schizoneura*). At certain seasons they feed to a considerable extent on soft fruits, apricots, plums, and especially blackberries; they are fond, too, of the saccharine juices of many flowers, and, in the Municipal Gardens at Cape Town, constantly resort to various favourite shrubs, notably the Australian 'Bottle-brush,' for the sake of the nectar of the blossoms. From constantly probing the corollæ of flowers, the feathers of the head are nearly always more or less dusted over with pollen, and these little birds, like the Sunbirds, must play a considerable part in the cross-fertilization of many plants.

"The nest is built among the smaller twigs at the extremity of a horizontal branch of a bush or low tree. It is very small, of a shallow cup-shape, and is neatly constructed of fine tendrils and moss, glued together with cobweb and frequently decorated on the outside with pieces of grey lichen. The interior is lined with hair. The eggs, four or five in number, are unspotted pale blue. They measure 0.66×0.50 .

"Both parents incubate the eggs, which are hatched at the end of ten days. The nestlings are fed on soft larva, small caterpillars and the saccharine juices of flowers by both male and female."

Dr. Russ says that so far as he knows this species has only once been imported, three examples having reached Europe towards the beginning of 1880; he does not seem to know what became of them. Of course there is no more reason why it should not be freely imported like the Chinese and Australian species, and doubtless one of these days some enterprising dealer will bring home a number.

YELLOW WHITE-EYE (*Zosterops flava*).

Greenish yellow, forehead and upper tail-coverts bright yellow; flights and tail-feathers blackish-brown with yellow margins; axillaries and under wing-coverts white or yellowish; body below yellow; sides of breast somewhat dingy; bill blackish; feet lead-coloured; irides brown. Female similar, but probably slightly paler and with more slender bill. Hab., Sumatra, Java and Borneo.

Dr. Russ regrets that he has been unable to discover any notes on the wild life of this bird; and unfortunately I have had no better luck, but there is a great sameness in the wild life of all the species, as will be seen by comparing the accounts of the preceding forms.

In February, 1877, Ch. Jannach imported thirteen examples of the Yellow White-Eye into the London market, of which a pair was forwarded to Dr. Russ, but arrived dead, but nevertheless were useful in establishing the species; he regrets that he is unable to say what became of the remaining examples, and since that time no more have been imported to his knowledge, yet there is no reason why they should not again appear in the market.

FLOWER-PECKERS (*Dicaeidae*).

To this family the genus *Pardalotus* has been referred by Dr. Sharpe; but Prof. Newton thinks that, if rightly placed here, the name of the family ought to be changed on the ground that *Pardalotus* antedates *Dicaeum*. I am afraid, if this rule were stringently followed, the names of many families in the various classes of animals would have to be altered. Although Prof. Newton says that the Diamond-birds (Australian

trivial name for the Pardalotes or Panther-birds) have been erroneously referred to the above family he does not say where they ought to be placed, and as Campbell accepts Dr. Sharpe's decision I am afraid I must do so also; in their habits they resemble the Titmice (*Paridae*) pretty closely, but I should be very sorry to suggest that they were related to them; one of these days some anatomist will doubtless decide what is their natural position.

SPOTTED PANTHER-BIRD (*Pardalotus punctatus*).*

Crown and nape, wings, and tail black, with a round white spot at the tip of each feather; a white eyebrow-stripe from base of bill to beyond eye; ear-coverts and sides of neck grey; feathers of back fawn-colour, grey at base and with black edges; rump and upper tail-coverts mahogany red-brown, the tail-coverts redder; throat and breast bright golden yellow; abdomen sandy buffish, tawny on the flanks; under tail-coverts yellow; bill black; feet flesh-brown; irides dark brown. Female with the colours less pronounced and no yellow on the throat. Hab., "Queensland, New South Wales, Victoria, South and West Australia, and Tasmania, including some of the islands in Bass' Strait."—Campbell.

An excellent illustration of the male in two positions by Mr. Norman B. Roberts accompanies an article on this bird which I published in June, 1900. (*The Avicultural Magazine*, 1st Series, Vol. VI., pp. 165-9.)

Gould says of this species:—"It is incessantly engaged in searching for insects among the foliage, both of trees of the highest growth and of the lowest shrubs; it frequents gardens and enclosures as well as the open forest; and is exceedingly active in its actions, clinging and moving about in every variety of position both above and beneath the leaves with equal facility.

"With regard to the nidification of the species, it is a singular circumstance that, in the choice of situation for the reception of its nest, it differs from every other known member of the genus; for while they always nidify in the noles of trees, this species descends to the ground, and, availing itself of any little shelving bank, excavates a hole just large enough to admit of the passage of its body, in a nearly horizontal direction to the depth of two or three feet, at the end of which a chamber is formed in which the nest is deposited. The nest itself is a neat and beautifully built structure, formed of strips of the inner bark of the *Eucalypti*, and lined with finer strips of the same or similar materials; it is of a spherical contour, about four inches in diameter, with a small hole in the side for an entrance. The chamber is generally somewhat higher than the mouth of the hole, by which means the risk of its being inundated upon the occurrence of rain is obviated. I have been fortunate enough to discover many of the nests of this species, but they are most difficult to detect, and are only to be found by watching for the egress or ingress of the parent birds from or into their hole or entrance, which is frequently formed in a part of the bank overhung with herbage, or beneath the overhanging roots of a tree. How so neat a structure as is the nest of the Spotted Diamond-bird should be constructed at the end of a hole where no light can possibly enter is beyond our comprehension. The eggs are four or five in number, rather round in form, of a beautiful polished fleshy-white, seven and a

half lines long by six and a half lines broad. "The song of the Spotted Diamond-bird is a rather harsh piping note of two syllables often repeated."—*Handb. Birds Australia*, Vol. I., pp. 157-8.

According to Dr. Ramsay, the nest consists of a lining to the spherical chamber at the end of the burrow, and is sometimes formed of grass. Sometimes it is placed in a hollow log, a crevice in an old wall, a niche under a shelving rock, or the banks of water-holes or creeks, but never in the hollow branches of trees like those of other birds. When blown the eggs are pearly white. The breeding-season sometimes commences as early as July and lasts until the end of December, three broods being reared.

When building, according to Mr. C. C. Brittlebank the male collects till his bill is full of bark, which he gives to his mate; he then collects his own load and carries it to the nest.

Mr. Campbell says that a nest which he "found in a West Australian forest was only eight or nine inches in the ground with a chamber three and a half inches in diameter."—"Nests and Eggs of Australian Birds," p. 444.

This beautiful little bird was imported by the late Mr. J. Abrahams in 1832. He sent a pair to Dr. Russ, but unfortunately they were dead when they reached him. There is not the least reason why they should not be freely imported. With a stock of any good insectivorous food there ought to be no difficulty.

HONEY-EATERS (*Meliphagidae*).

Though there is not much prospect of aviculturists securing many Poë-birds in the future, it has been such a notable cage-bird in the past that it must not be passed over.

POË HONEY-EATER, TUI, OR PARSON-BIRD (*Prothemadera nova-zealandiae*).

Shining metallic green with purple reflections on the shoulders, rump and upper tail-coverts; hind neck with collar of soft curved filamentous feathers having white central lines; middle of back and scapulars bronze-brown, the latter with blue reflections; greater wing-coverts metallic green, the outer ones glossy blackish purple; intermediate ones white in their apical portion, forming a distinct wing bar; flights black; primaries with metallic green outer edges towards base; this colour increases on the secondaries until it covers the whole web; tail metallic green with purplish reflections; lower breast metallic green changing to purplish blue; sides and abdomen blackish brown, the long flank feathers shading into pale brown; under surface of wings and tail black; under wing-coverts metallic green; throat ornamented with two tufts of curled white filamentous feathers; bill and feet blackish brown; irides dark brown. Female smaller, less brightly coloured, more brown on underparts; tufts on throat smaller. Hab., New Zealand.

Sir Walter Buller says:—"This is one of our most common species, and on that account generally receives less attention in its own country than its singular beauty merits."

"It is incessantly on the move, pausing only to utter its joyous notes. The early morning is the period devoted to melody, and the Tuis then perform in concert, gladdening the woods with their wild ecstasy. Besides their chime of five notes (always preceded by a key-note of preparation), they indulge in a peculiar outburst which has been facetiously described as 'a

* Some years ago Professor Alfred Newton objected to my adoption of this German name for the species, in place of the Australian name Diamond-bird; but I pointed out that there were other Diamond-birds in Australia—the Diamond-Sparrow and the Diamond-Dove—and a dealer would be confused by so many; so that "Panther-bird" was preferable.

cough, a laugh, and a sneeze,' and a variety of other notes entitling it to be ranked as a songster.

"Its flight is rapid, graceful, and slightly undulating, the rustling of the wings as they are alternately opened and closed being distinctly audible.

"The food of the Tui consists of ripe berries of various kinds, flies and other insects, and the honey of certain wild flowers.

"The nest of this species is usually placed in the fork of a bushy shrub, only a few feet from the ground, but I have also found it at a considerable elevation, hidden among the leafy top of a forest tree. It is rather a large structure, composed chiefly of sprays or dry twigs, intermixed with coarse green moss, the cavity being lined with fibrous grasses, very carefully bent and adjusted. Sometimes the interior is composed of the black hair-like substance from the young shoots of the tree-fern, the cavity being lined with dry bents."

"The eggs are generally three or four in number, and present some variety in form and colour. They are white, with a faint rosy blush, stained, mottled and freckled with reddish-brown; or more or less speckled only at the larger end; sometimes almost pure white." (Cf. Buller's "Birds of New Zealand.")

The Zoological Society's List records nineteen examples of this species as having been exhibited in the Gardens at Regent's Park, and at one time the Poë-bird or Tui used to be a familiar object at bird shows, but of late years I have not seen a specimen.

There is much difference of opinion as to the most suitable food for captive Parson-birds, the following having been recommended by various aviculturists who have kept it: Boiled potato mashed up with moist sugar; potato mashed up with condensed milk; crushed biscuit mixed with condensed milk; stale breadcrumbs two parts, Abrahams' food one part, moistened with grated carrot and mixed with a little preserved yolk of egg; Carl Capelle's food, and ants' cocoons. I should feed them precisely as I do Tanagers, on my regular soft-food mixture, orange, banana, and a few mealworms, and I am quite sure they would do well.

A very interesting paper on the Australian Honey-eaters from the pen of Mr. A. J. Campbell appeared in *The Avicultural Magazine*, N.S., Vol. I., pp. 347-353, with notes on various species kept in captivity in their native land.

LUNULATED OR WHITE-NAPED HONEY-EATER (*Melithreptus lunulatus*).

Above greenish olive; head and chin black; a white crescentic marking on the occiput; a scarlet naked space above eye; wings and tail brown; outer webs of primaries with their apical half edged with grey; basal half, outer webs of secondaries and tail feathers washed with greenish olive; below white; bill blackish brown; feet olive; irides dark brown. Female similar, but smaller. Hab., Wide Bay, Richmond and Clarence Rivers Districts, New South Wales, Victoria, and South Australia.

"It inhabits almost every variety of situation, but gives a decided preference to the *Eucalypti* and *Angophoræ* trees, among the smaller branches of which it may be constantly seen actively engaged in searching for insects, which, with the pollen and honey of the flower-cups, constitute its food. It is a stationary species, and breeds during the months of August and September; its beautiful, round, cup-shaped, open nest is composed of the inner rind of the stringy bark or other allied gum-trees, intermingled with wool and hair, warmly lined with opossum's fur, and is suspended by the rim to the small leafy twigs of the topmost branches

of the *Eucalypti*. The eggs are two or three in number, of a pale buff, dotted all over, but particularly at the larger end, with distinct markings of rich reddish brown and chestnut-red, among which are a few clouded markings of bluish grey; their medium length is nine lines, and breadth six and a half lines.

"Like the young of *M. chloropsis*, the young birds of this species breed some time before they have attained their green livery; at all events, I have found examples breeding in a state of plumage, which I believe to be characteristic of youth."—Gould, "Handb. Birds Austral." I., pp. 568-9.

A. J. North, "Catalogue of Nests and Eggs," etc., p. 227, observes:—"Amongst a number of nests presented by Dr. Ramsay to the Trustees of the Australian Museum is one of this species, taken in October, 1864; it is a deep, cup shaped structure, outwardly composed of shreds of stringy bark (*Eucalyptus obliqua*), closely matted and held together with cobweb, wool, etc., and lined inside with hair; it is slung by the rim to the leafy twigs of a eucalyptus, exterior measurements 2½ in. in diameter, by 2½ in. in depth. Eggs two or three in number for a sitting, of a yellowish buff ground-colour, with spots of a deeper and more reddish hue, some specimens being uniformly spotted all over, but more often assuming the form of a zone."

"This bird usually breeds during August and the three following months in Victoria, but there are eggs of this species in the Dobroyde Collection taken at Dobroyde, New South Wales, in June, 1859, and July, 1861.

In *The Avicultural Magazine*, 1st Series, Vol. VI., pp. 99-100, the Rev. C. D. Farrar published an account of some birds brought home by a friend of his as *M. lunulatus*. His description of them does not correspond with any Honey-eater recorded by Gould, and that it does not agree at all with the description of the Lunulated Honey-eater may be seen by a comparison of the following two accounts:

GOULD.

Head black.
Wings brown.
Breast white.

FARRAR.

Head olive-green.
Wings olive-green.
Breast soft mouse-colour.
Underwing-buffs a patch of saffron.

A white crescent on occiput.

A crescent of saffron on cheek.

Bill blackish-brown.

Bill yellow, tipped with horn.

Feet olive.

Feet lead-colour.

Possibly the birds may not even have been Honey-eaters, but Mr. Farrar says they refused all other food after honey had been procured for them. Then the question arises as to whether *M. lunulatus* ever has been imported yet. Russ does not record it.

STRONG-BILLED HONEY-EATER (*Melithreptus validirostris*).

Upper surface greyish olive, brighter on rump and outer edges of tail feathers; crown black, with an occipital band of white terminating at each eye; bare skin over eye greenish-white; back of neck black; wings brown, tinted with olive; ear-coverts and chin black; throat white; under parts otherwise brownish-grey; bill black; feet brownish horn-colour; irides reddish-brown. The female is probably smaller, though said not to be. The young have the bill and feet yellow, the latter paler than the former; a circle of the same colour round eye and the band at the occiput yellow. Hab., Tasmania, King-Island, and probably Furneaux group.

Mr. Gould says that this species is so universally distributed over Tasmania "that scarcely any part is with-

out its presence. The crowns of the highest mountains, as well as the lowlands, if clothed with *Eucalypti*, are equally enlivened by it. Like all the other members of the genus, it frequents the small leafy and flowering branches; it differs, however, from its congeners in one remarkable character—that of alighting upon and clinging to the surface of the boles of the trees in search of insects. I never saw it run up and down the trunk, but merely fly to such parts as instinct led it to select as the probable abode of insects.

"I am indebted to the Rev. Thomas J. Ewing, D.D., for the nest and eggs of this bird, which I failed in procuring during my stay in Tasmania. Like those of the other members of the genus, the nest is round and cup-shaped, suspended by the rim, and formed of coarse, wiry grasses, with a few blossoms of grasses for a lining; the eggs are three in number, eleven lines long by eight lines broad, and of a dull olive-buff, thickly spotted and blotched with markings of purplish brown and bluish grey, the latter appearing as if beneath the surface of the shell.

"The song consists of a couple of notes, and is not remarkable for its melody."—"Handbook Birds Austral." Vol. I., p. 565.

According to Mr. Campbell, the breeding season is from August to December.

Mr. North describes the eggs as fleshy-buff, becoming darker towards the larger end, where they are thickly spotted with purplish-brown and superimposed markings of deep greyish-lilac. (Cf. Cat. Nests and Eggs, p. 225.)

Dr. Russ says that this Honey-sucker has altogether been only once imported alive, in the year 1880, when it arrived at the Zoological Gardens of Amsterdam. But may not Mr. Farrar's birds have been young of this species in their transitional stage towards the adult colouring? Mr. Carrick says that he has imported *M. atricapillus*.

WARTY-FACED HONEY-EATER (*Meliphaga phrygia*).

Black; scapulars broadly margined with pale yellow; lower back margined with yellowish-white; upper tail-coverts margined with pale yellow; wing-coverts margined with yellow; bastard wing yellow; primaries with broadly yellow outer margin, part of inner web along the shaft yellow; secondaries with broadly yellow-margined outer web; feathers of under surface with subterminal arrow-shaped yellowish-white markings; central tail-feathers with small yellow tips, the remainder increasingly yellow to the outermost ones; bill black; feet blackish brown; irides reddish-brown; the face covered with dull yellowish-white warty excrescences. Female similar, but much smaller. Young without warty excrescences, the face partly clothed with feathers. Hab., Queensland, New South Wales, Victoria, and South Australia.

Gould says of this species:—"Although it is very generally distributed, its presence appears to be dependent upon the state of the *Eucalypti*, upon whose blossoms it mainly depends for subsistence; it is consequently only to be found in any particular locality during the season that those trees are in blossom. It generally resorts to the loftiest and most fully-flowered tree, where it frequently reigns supreme, buffeting and driving every other bird away from its immediate neighbourhood; it is, in fact, the most pugnacious bird I ever saw, evincing particular hostility to the smaller *Meliphagide*, and even to others of its own species that may venture to approach the trees upon which two or three have taken their station. While at Adelaide, in South Australia, I observed two pairs that had possessed themselves of one of the high trees that had been left standing in the middle of the city, which tree

during the whole period of my stay they kept sole possession of, sallying forth and beating off every bird that came near. I met with it in great abundance among the brushes of New South Wales, and also found it breeding in the low apple-tree flats of the Upper Hunter. I have occasionally seen flocks of from fifty to a hundred in number, passing from tree to tree as if engaged in a partial migration from one part of the country to another, or in search of a more abundant supply of food.

"The nest, which is usually constructed on the overhanging branch of a eucalyptus, is round, cup-shaped, about five inches in diameter, composed of fine grasses, and lined with a little wool and hair. The eggs are two in number, of a deep yellowish-buff, marked all over with indistinct spots and irregular blotches of chestnut-red and dull purplish-grey, particularly at the larger end, where they frequently form a zone; they are eleven lines long by eight lines and a half broad.

"The stomachs of the specimens I killed and dissected on the Hunter were entirely filled with liquid honey; insects, however, doubtless form a considerable portion of their diet."—"Handb. Birds Austral." Vol. I., pp. 527-8.

Campbell says ("Nests and Eggs of Australian Birds," p. 382):—"The peculiar plaintive song, accompanied with the bowing of the head, of the Warty-faced Honey-eater is very agreeable." The same author quotes from Mr. Hermann Lau, that "the site of its big nest is at about the height of twenty feet in a tree, and always near a thick stem or a few sprouting shoots. It is roughly made of coarse, dry grass, lined with rootlets and animal hair. Deposits two or three eggs." It breeds from the end of September to December.

Russ says that hitherto this bird has only been once imported, four examples having reached the London Zoological Gardens in 1882. He therefore thinks it is of little interest to aviculturists, but in this opinion I think he is mistaken, because when a species has once been imported there is always a likelihood that it may be imported again, and I am not at all certain that the instance which he mentions is the only one in which it has reached the London market.

WHITE-EARED HONEY-EATER (*Ptilotis leucotis*).

Above yellowish-olive; crown grey, with longitudinal black streaks; ear-feathers silvery white; tail tipped with yellowish-white; throat and breast black; abdomen yellowish-olive; bill black; feet greenish lead-grey; irides greenish-grey. Female similar, but considerably smaller. Hab., Australia, excepting in the north.

Gould says that this bird "is as much an inhabitant of the mountainous as of the lowland parts of the country, and is always engaged in creeping and clinging about among the leafy branches of the *Eucalypti*, particularly those of a low or stunted growth.

"Its note is loud, and very much resembles that of the *Ptilotis penicillata*. The stomach is small and membranous, and the food consists of insects of various kinds."—"Handb. Birds Austral." Vol. I., p. 510.

Mr. Campbell says:—"The bird is an early breeder. I had always to be afield in the coastal scrubs about the beginning of September if I wanted fresh eggs. The nest is difficult to find amongst the acres of thick, short scrub, and frequently is only detected by watching the movements of the birds, which at all times are exceedingly wily. My greatest find of White-eared Honey-eaters' nests was in 1883, if I recollect rightly, when I found three nests, all situated about a foot from the ground, and lined with a thick warm ply of cow-hairs wonderfully woven.

"It is interesting to watch the birds plucking hair off while perched on the backs of cattle, and rather a difficult task it proves for the bird to effect lodgment, especially if the cow patronised be not in an amiable mood, when she tosses her head angrily and switches her tail from flank to flank, while the bird, fluttering over, waits an opportunity to dodge the appendage, and between each lash plucks a few hairs till a mouthful is obtained, then flies to its nest."

Mr. Campbell describes the nest and eggs as follows:—"Nest: Cup-shaped, deep; well constructed of fine bark and grass, matted together with spiders' cocoons; lined inside with a warm ply of cow or other hair; usually placed near the ground, in a thick bush or in low scrub. Dimensions over all, $3\frac{1}{2}$ inches to 4 inches by $2\frac{1}{4}$ to $3\frac{1}{2}$ inches in depth; egg cavity 2 inches across by $1\frac{1}{2}$ inches deep.

"Eggs: Clutch two usually, three occasionally; stout oval; texture fine; surface slightly glossy; colour almost white, but sometimes of a delicate flesh-tint, sparingly but distinctly marked and spotted with pinkish-red, the spots being more about the upper quarter. Dimensions in inches of a proper pair: (1) .86 x .64, (2) .85 x .63."—"Nests and Eggs of Australian Birds," pp. 396-7.

The Zoological Gardens of Hamburg received a single example of this Honey-eater in 1881, and Dr. Russ believes that up to the present time this is the only instance of its importation.

YELLOW-TUFTED HONEY-EATER (*Ptilotis auricomis*).

Above dark brown, slightly olivaceous; primaries and tail-feathers margined with olive-yellow; crown of head olive-yellow; a black line from base of bill, encircling the eye and extending over the ear-coverts; behind the latter a tuft of extremely rich yellow feathers extends backwards; throat bright yellow; remainder of under-surface brownish-yellow; bill black; feet blackish-brown; irides reddish-brown. Female similar in colouring, but smaller. Hab., Queensland, New South Wales, and Victoria.

Gould says:—"The Yellow-tufted Honey-eater is abundant in New South Wales, inhabiting at one season or other every portion of the country; the brush near the coast, the flowering trees of the plains, and those of the sides and crowns of the hills towards the interior being alike tenanted by it. It is an active, animated species, flitting with a darting flight from tree to tree, and threading the most thickly-leaved branches with a variety of sprightly actions."—"Handb. Birds Austral.," Vol I., p. 511.

Gould quotes an account of the nidification published by Dr. Ramsay in *The Ibis* for 1864, but the following later account quoted by Mr. Campbell is, I fancy, more exact:—"This species remains with us in the neighbourhood of Sydney throughout the whole year, breeding earlier than the generality of Honey-eaters. We have eggs in our collection taken early in June and as late as the end of October, during which month they sometimes have a third brood. August and September seem to be their principal months for breeding. Upon referring to my note-book, I find that I captured two young birds, well able to fly, on July 18th, 1863; but during some seasons birds breed here much earlier than in others. The nest is a neat but somewhat bulky structure, open above, and composed of strips of the stringy bark *Eucalyptus obliqua*. The total length of the nest is about 4 inches by from $2\frac{1}{2}$ inches to 3 inches wide, being 2 inches deep by $1\frac{1}{2}$ inches inside. The eggs, which are usually two in number, are of a pale flesh-pink, darker at the larger end, where they are spotted

and blotched with markings of a much deeper hue, inclining to salmon-colour; in some the markings form a ring upon the thick end, in others one irregular patch with a few dots upon the rest of the surface. When freshly taken they have a beautiful blush of pink, which they generally lose a few days after being blown. Their length is from ten to eleven lines by seven to eight in breadth. Some varieties have a few obsolete dots of faint lilac, others are without markings, save one patch at the top of the larger end. Like most of our Australian birds' eggs, they vary much in shape and tint of colour. The site selected for the nest is usually some low, bushy shrub, among the rich clusters of *Tecoma australis*, or carefully hidden in the thick tufts of *Blechnum* (*B. cartilagineum*), which often cover a space of many square yards. In these clumps, where it clings to the stems of ferns, I have several times found two or three pairs breeding at the same time within a few yards of each other. The ferns and *Tecoma* seem to be their favourite places for breeding, although the nests may often be found placed suspended between forks in the small bushy oaks (*Casuarina*)."

Dr. Ramsay says that, "like most of its tribe, the Yellow-tufted Honey-eater is very partial to fruit, and during the latter end of February and throughout the month of March the pear trees swarm with this and many other species. During the orange season also they visit us in great numbers, and many may be seen fighting over the half-decayed fruit with which the ground at that time it literally strewed." This seems an important item to bear in mind in the event of my readers becoming possessed of examples of any of these birds.

According to Campbell, the breeding-season is from July to January.

The Zoological Gardens of Berlin became possessed of an example of this charming species early in 1894. The following was the food supplied to it:—"Early in the morning, on alternate days, mealworms and fresh ant-cocoons; at eight o'clock, biscuit and any fruit that happened to be in season, and in addition a date stuck between the bars of the cage. Towards eleven a little shredded raw meat, of which, however, it would only suck up the juice. At one o'clock the staple food, consisting of sopped bread or crumbled white bread and cooked or grated carrot, a little rice, boiled egg, varied with minced figs or small and large raisins, with a little sugar sprinkled over the whole. In the afternoon something quite soft, yellow salad (whatever that may be), and, in conclusion, towards evening bread soaked in milk." If that bird did not die from chronic indigestion I can only say that the Honey-eaters must be the most vigorous creatures in existence. In 1899 a pair reached the London Gardens.

YELLOW HONEY-EATER (*Ptilotis flava*).

Upper surface olivaceous-grey; head yellow, a spot of blackish-brown under the ear-coverts, with a bright yellow patch behind it; under-parts citron-yellow; length, 6½ in.; colouring of soft parts not noted, by Gould. Hab., coastal region of North Queensland, including the Gulf of Carpentaria. (Campbell.)

As it is doubtful whether this bird has hitherto been imported, I will merely note that, according to Mr. J. A. Boyd and others, the nest is usually suspended by the rim to the thin leafy twigs of a cumquat (orange) tree, but sometimes in a ficus or a mango; is mostly composed of coconut fibre; the eggs, two in number, are of fine texture, without gloss, pinky-white, marked chiefly at the small end with blotches of light chestnut or pinkish-brown and light purplish-brown.



LEWIN'S HONEY-EATER.

LEWIN'S HONEY-EATER (*Ptilotis lewini*).

Upper surface, olive-green; a blackish streak from forehead to beyond the eye, below which is a narrow stripe of yellow almost joining a patch of bright yellow behind the ear; under surface, paler olive-green; bill, black at tip, yellow at base; feet, purplish flesh-colour; irides, dark lead-colour. Female similar, but smaller. Hab., Queensland, New South Wales, and Victoria.

Gould says of this species:—"Moderately-sized trees, particularly *Casuarina* and *Banksia*, thinly scattered over grassy plains and the crowns and sides of low hills, are its usual places of resort. In Western Australia it enters the gardens and commits considerable havoc among the fruit trees, particularly figs, of the seeds of which it appears to be fond. It also feeds upon insects, which are principally sought for among the branches; but it frequently seeks for them and small seeds on the ground, when it hops around the boles and beneath the branches of the trees in a most lively manner.

"Its natural notes are full, clear, and loud, and may be heard at a considerable distance. In South Australia I heard it in full song in the midst of winter, when it was one of the shiest birds of the country.

"It is exceedingly pugnacious in disposition, often fighting with the Wattle Birds (*Anthochaera*), and other species even larger than those.

"The breeding season commences in August and terminates in December. The nest is a frail, round, cup-shaped structure, the materials of which vary in different situations; those observed by me in New South Wales being composed of fine dried stalks of annuals thinly lined with fibrous roots woven together with spiders' webs, and suspended by the rim to two or three fine twigs near the centre of the tree; on the other hand, those observed by Gilbert in Western Australia were formed of green grasses, which become white and wiry when dry, matted together with the hair of kangaroos or opossums, lined with fine grasses and the down of flowers, and placed in a thick scrubby bush at about three feet from the ground.

"The eggs are usually two, but occasionally three in number, of a light yellowish buff, thickly freckled with small, indistinct reddish-brown marks, or of a nearly

uniform fleshy-buff, without spots or markings, but of a deeper tint at the larger end. Their medium length is eleven lines, and breadth eight lines."—"Handb. Birds Austral.," Vol. I., p. 505.

According to Campbell the nest is "constructed chiefly of strips of bark (*Melaleuca*, etc.) and spiders' cocoons, generally outwardly, beautifully covered with moss, lined inside with thick warm ply of a downy or silky substance, such as thistledown or other soft seeds, varying in colour—white, brown, or yellowish—according to the locality or the species of plant from which the seeds are gathered." The eggs are described as "white, very sparingly marked with spots and dots of dark purplish-brown, almost black, most of the markings being on the apex or about the upper quarter."—"Nests and Eggs of Australian Birds," pp. 386-7.

This species has been imported by Mr. Geo. Carrick (cf. *Avicultural Magazine*, 1st series, Vol. VI., p. 251), together with other

Honey-eaters. He says: "I tried them all on pure honey, which they one and all took to greedily, refusing



YELLOW-TUFTED HONEY-EATER.

to taste any other food while honey remained, but never found them do well on it; besides, I found it impossible to keep the birds clean if kept in cages. The larger honey-eaters are easily kept, and will partake of any good insectivorous food with addition of fruit and meal-worms."

FUSCOUS HONEY-EATER (*Ptilotis fusca*).

Above greyish-brown, slightly washed with olive; a ring of black feathers round eye; eyelashes pale yellow; ear-coverts blackish-brown; a small patch of yellow behind the ear; under-surface pale greyish-brown; bill black at tip, dull yellow at base; gape and corners of mouth yellow; feet fleshy-brown; irides pale yellow. Female similar, but rather smaller. Hab., Queensland, New South Wales, and Victoria.

Gould observes:—"In the months of August and September, when the beautiful *Tecoma* is in blossom, it may be seen flitting about among the thick clusters of the pendent flowers in search of insects, which are sometimes captured while on the wing, but more generally extracted from the tubular florets."—"Handb. Birds Austral.," Vol. I., p. 520.

Mr. Campbell describes the nest as "cup-shaped, neat; composed of shreds of brownish bark, matted with spiders' web and cocoons; lined inside with fine shreds of bark, a few rootlets or grass stalks, hair, and sometimes the silky down from seed-vessels or cotton material, gathered in the neighbourhood of habitations; usually placed among the branchlets at the end of a horizontal eucalypt bough. Dimensions over all, $2\frac{1}{2}$ inches by $2\frac{1}{2}$ inches in depth; egg cavity, $1\frac{1}{3}$ inches across by $1\frac{1}{4}$ inches deep.

"Eggs: Clutch, one to three, but usually two; oval or roundish in form; texture of shell fine; surface has a faint trace of gloss; colour, rich salmon or buff, marked more or less distinctly about the apex with pinkish-red and purplish-brown. Dimensions in inches $.73 \times .6$."—"Nests and Eggs of Australian Birds," p. 385.

Mr. Campbell also quotes Messrs. Barnard as having taken an exceptional clutch of four eggs.

This species was received at the Berlin Zoological Gardens in 1895.

GARRULOUS HONEY-EATER (*Myzantha garrula*).

Upper surface pale greyish brown; feathers at back of neck tipped with silvery-grey; primaries dark brown, with grey edges to outer webs; secondaries with dark brown inner webs, outer webs yellow at base, grey at tips; tail-feathers greyish-brown, with darker shafts; all excepting the two central ones with brownish-white tips; crown dull black; face grey; ear-coverts and a crescentic streak running upwards to angle of beak jet-black; naked space below eye yellow; chin grey at sides, black in centre; remainder of under-surface grey, the breast with narrow crescentic subterminal markings to the feathers; bill and feet yellow; irides dark hazel. Female similar in plumage, but rather smaller. Hab., South Queensland, New South Wales, Victoria, South Australia, and Tasmania.

Gould says:—"The natural habits of this bird lead it to frequent the thinly-timbered forests of *Eucalypti* clothing the plains and low hills rather than the dense bushes.

"It moves in small companies of from four to ten in number. In disposition it is restless, inquisitive, bold, and noisy, and frequently performs the most grotesque actions, spreading out the wings and tail, hanging from the branches in every possible variety of position, and keeping up all the time an incessant babbling. Were this only momentary or for a short time, their droll

attitudes and singular note would be rather amusing than otherwise; but when they follow you through the entire forest, leaping and flying from branch to branch, they become very troublesome and annoying.

"The nest is cup-shaped, and about the size of that of the European Thrush, very neatly built of finetwigs and coarse grass, and lined either with wool and hair, or fine soft hair-like strips of bark, frequently mixed with feathers; it is usually placed among the small upright branches of a moderately-sized tree. The eggs, which vary considerably, are thirteen lines long by nine and a half lines broad, are of a bluish-white, marked all over with reddish-brown, without any indication of the zone at the larger end so frequently observable in the eggs of other species."—"Handb. Birds Austral.," Vol. I., p. 575.

Campbell says of the eggs:—"Clutch, three to four, rarely five; oval or round-oval in form; texture fine; surface glossy; colour, warm white, mottled and spotted all over, more thickly on the apex, with rich reddish-chestnut and purplish-grey."—"Nests and Eggs of Australian Birds," p. 420.

Of this species the dealer Reiche of Alfeld received a large consignment in 1893; in 1894 Reisz of Berlin acquired one specimen, and Rambaud of Marseilles a pair. In the same year a specimen reached the London Zoological Gardens. Mr. George Carrick has also imported this species.

WATTLED HONEY-EATER (*Anthochaera carunculata*).

Above greyish-brown; all the feathers with a white central stripe; upper tail-coverts with grey margins; flights blackish brown with grey margins, broader on the secondaries; tail-feathers white-tipped, the two central ones greyish-brown, the others blackish-brown; crown, a line from base of bill running below eye, and ear-coverts blackish-brown; space below eye silvery white, behind which is an oblong naked flesh-coloured spot, under which is a short pinky blood-red wattle; throat, breast and flanks grey with paler centres to the feathers; centre of abdomen yellow; bill black (*Russ*); feet brownish-flesh-colour; irides hazel-red. Hab., South Queensland, New South Wales, Victoria, South and West Australia.

Gould publishes the following notes on this species:—"I observed it to be very numerous in all the high gum trees around Adelaide, in most parts of the interior, and in all the *Angophora* flats and forests of *Eucalypti* of New South Wales. It is a showy active bird, constantly engaged in flying from tree to tree and searching among the flowers for its food, which consists of honey, insects, and occasionally berries. In disposition it is generally shy and wary, but at times is confident and bold. It is usually seen in pairs, and the males are very pugnacious. Its habits and manners, in fact, closely resemble those of the *A. inauris*, and, like that bird, it utters with distended throat a harsh disagreeable note.

"It breeds in September and October. The nests observed by myself in the Upper Hunter district were placed on the horizontal branches of the *Angophora*, and were of a large rounded form, composed of small sticks, and lined with fine grasses. Those found by Gilbert in Western Australia were formed of dried sticks, without any kind of lining, and were placed in the open bushes. The eggs are two or three in number, one inch and three lines long by ten lines and a half broad; their ground-colour is reddish buff, very thickly dotted with distinct markings of deep chestnut, amber, and reddish brown, interspersed with a number of indistinct marks of blackish grey, which appear as if beneath the surface of the shell; eggs taken in New

South Wales are somewhat larger than those from Western Australia, and have markings of a blotched rather than of a dotted form, and principally at the larger end."—*Handb. Birds Austral.* I., p. 589.

Campbell says of the nest, "lined with grasses or soft bark, wool, and a few feathers." He says, however, "I was able to verify Gilbert's acute observation, that the nests of the Wattle Bird in Western Australia are usually built without lining."—"Nest and Eggs of Australian Birds," pp. 423-4.

In 1894, Reisz of Berlin received this species, which was sent to the Berlin Zoological Gardens, and Reisz says that this is the only instance of its importation.

BLUE-FACED HONEY-EATER (*Entomyza cyanotis*).

Upper surface golden olivaceous; the inner webs of the primaries and the tail-feathers (excepting the two central ones) brown, tipped with white; crown and back of neck black; a white crescentic marking at the occiput; bare space round eye deep blue, paler and greenish above eye; lower part of face, chin, and centre of breast slaty-black; a line from lower mandible passing down each side of neck, and remainder of under surface pure white; bill blackish-horn-colour at tip, pale bluish grey at base; feet bluish-grey; irides yellowish-white. Female similar in plumage. Young with naked patch on face and base of bill yellowish-olive. Hab., Queensland, New South Wales, Victoria, and South Australia.

Gould says:—"I have frequently seen eight or ten of these bold and spirited birds on a single tree, displaying the most elegant and easy movements, clinging and hanging in every variety of position, frequently at the extreme ends of the small, thickly-flowered branches, bending them down with their weight; they may be easily distinguished from other birds with which they are frequently in company by their superior size, the brilliancy of their blue face, and the contrasted colours of their plumage; they are rendered equally conspicuous by the pugnacity with which they chase and drive about the other species resorting to the same tree.

"It frequently utters a rather loud and monotonous cry, not worthy the name of song.

"I observed a most curious fact respecting the nidification of this bird. In every instance that I found its eggs, they were deposited on the deserted, dome-shaped, large nest of the *Pomatorhinus temporalis*, so numerous in the Apple-tree Flats in the district of the Upper Hunter; never within the dome, but in a neat round depression on the top. I had many opportunities of driving the female off the nest, and I can therefore speak with confidence as to this fact.

"It is probable that, in places where no suitable substitute is to be found, it makes a nest like other species of its tribe. It commences breeding early, and rears at least two broods in the year. On reference to my note book, I find I saw fully-fledged young on the 19th of November, and that I took many of their eggs in December; they were generally two in number, of a rich salmon-colour irregularly spotted with rust-brown, one inch and a quarter long by ten and a half lines broad."—"Handb. Birds Austral." I., pp. 561-2.

Campbell describes the true nest as "cup-shaped, round, neat; composed of strips of bark, in some instances with grass; usually placed in a depression on the top or side of the deserted large-domed stick nest of the Babbler or *Pomatorhinus temporalis*. In some instances the nest is suspended in the ordinary Honey-eater-like fashion in the branchlets of a tree, and is substantially constructed of coarse strips of bark; lined inside with fine, reddish brown (inner) bark, and a small quantity of grass." The dimensions of the latter are given as 6 inches by 4; egg-cavity 3½ by

2 inches. The London Zoological Society received this species in 1882 and again in 1895; the Berlin Gardens acquired it in 1893, and the dealer Reisz exhibited it in 1894 at the exhibition of the *Egintha* Society in Berlin.

BLACK-TAILED FLOWER-BIRD (*Anthornis melanura*).

Upper surface dark olivaceous-brown; flights with greener margins to the outer webs; secondaries with dull greyish tips; tail-feathers with pale outer margins; forehead faintly glossed with steel green; loreal stripe black-brown; a narrow whitish stripe from the angle of the bill to the sides of the head; under surface paler than the upper, yellow; under wing and tail coverts dull yellowish white with brownish central spot; bill black; feet dark leaden grey; irides brown to blood-red. Female rather smaller, duller and paler. Hab., New Zealand.

This bird has been called Bell-bird on account of the sound of a flock resembling a peal of bells. Writing of it as observed by himself in its native land Andreas Reischek says:—"As soon as the sun has risen, the singers grow silent, and scatter to seek their food—the nectar of blossoms. Wherever many wild bees are found, these birds disappear, because those insects reduce the quantity of their food. As the petty chieftain Tinatochi, the ruler of the Hauturu Islands, has refused to allow bees to be introduced into his domain, our Bell-bird is still fairly abundant there. In September, 1883, three pairs built their nests here near my Nikau-ware (hut of palm-leaves) in the thick branches of trees, at a height of 6.6 to 16.6 feet, using for their construction small dry twigs, roots, and moss, and as a lining to the egg-cavity soft feathers. In October the hens laid four to five eggs, the white ground-colour of which was densely covered with pale red spots. Both sexes incubated alternately and together reared the young on nectar, insects, and berries." (Cf. Russ, "Fremdl. Stubenvögel," Vol. II., p. 371.)

Many years ago this species was imported by Charles Jamrach, and since that time the London Zoological Society has received specimens in 1871, 1872 and 1895; but as, in spite of efforts to protect it, this little Honey-eater, which at one time was distributed over the whole of New Zealand, appears now to have almost, if not quite, disappeared from the North Island and seems to be restricted to the South Island and a few neighbouring islets, it is hardly likely that it will ever be a familiar bird in the market here; but this, alas! is practically true of most New Zealand birds; the specimens left alive by cats, Sparrows and other vermin are jealously protected by the European colonists.

CHAPTER VIII.

SUGAR-BIRDS (*Corébida*).

These birds are related to the Tanagers, and Dr. Sclater observes that it "is in some instances difficult to distinguish the *Corébida* from the *Tanagrida* on the one side and from the *Mniotiltida* on the other, but the more slender, unnotched bill and filamentous termination of the extensible tongue, when the latter character is discernible, will usually serve to indicate a *Corébina* bird." It may be well to note that the *Mniotiltida* are the "Bush-creepers," and replace the Old World Warblers in America.

The management of Sugar-birds in captivity should be similar to that of Tanagers. Four species have, during the last few years, been sparingly imported into England, and may, perhaps, one of these days, be as freely imported as the best known Tanagers. If so,



WATTLED HONEY-EATERS.
(*Sketched at the Zoological Gardens.*)

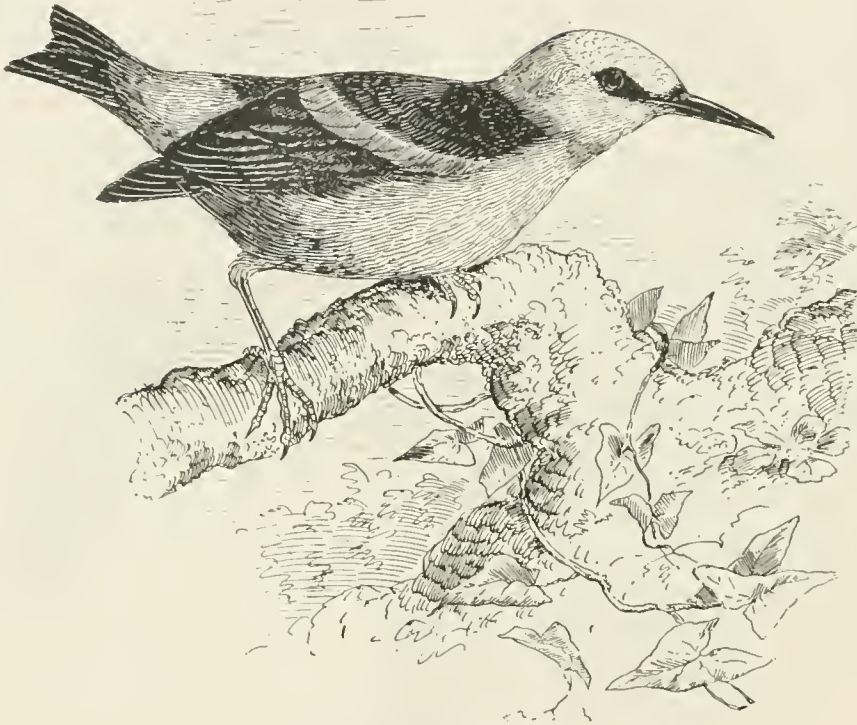
doubtless their price, which is now very high, may be expected to become fairly reasonable.

YELLOW-WINGED SUGAR-BIRD (*Certha cyana*).

It is bright purplish blue, with the lores, a space enclosing the eye, the mantle, wings and tail black; the crown pale blue; inner webs of wing feathers and under wing-coverts sulphur yellow, whence its trivial name; bill black; feet carnation red; iris dark brown. The female is green, dark above, yellowish and indis-

tinctly streaked below; wings and tail blackish, edged with green; inner webs of wing feathers and under wing-coverts yellow.

at the migrating season they feed greedily on soft saccharine fruits, oranges for example, and then come even into the gardens of the settlers." ("Syst. Uebers. der Thiere Brasiliens," 3, p. 151.) According to Bartlett, this bird is "common at certain seasons" in Eastern Peru (P.Z.S., 1873, p. 260). Taczanowski in his "Ornithologie du Pérou," Vol. 1., p. 437, does not even give as much information respecting the wild life as this. W. A. Forbes, who would have given information if he could, says (*The Ibis*, 1881, p. 330): "Only



YELLOW-WINGED SUGAR-BIRD.

It may readily be distinguished from any species of *Daenis* or from other birds of more nearly related genera by its slender curved bill and its colouring.

Burmeister observes of this species that "in the entire forest region of tropical Brazil, from Rio de Janeiro northwards to Para, and further upwards to Guiana and Colombia, it is everywhere known and nowhere rare. Insects are its chief article of diet, but

once did I come across this bird—a single specimen in immature plumage that I saw in the garden at Estancia."

Salvin (*The Ibis*, 1888, p. 257) states that it is common at Yucatan and occurs at Cuba, but he tells us nothing about its habits. I do not think the habits of birds greatly interested him, he was more devoted to classification.

Mr. C. F. Underwood (*The Ibis*, 1896, p. 435) tells us that the native name of the bird in Costa Rica is "Picudo"; and in the same volume, p. 517, Mr. G. E. Lodge, in his "Notes on West Indian Humming-birds," remarks: "In this clump of bamboos, too, were several

nests of the little 'Sugar-eater,' which I think is *Cæreba cyanea*." But he does not describe either nest or eggs.

In a notice of Nehr Korn's Catalogue of his Egg-collection (*The Ibis*, 1899, p. 462) is the following remark: "Among the special rarities of the collection we observe eggs of *Cæreba cyanea* from Amazonia (of an almost uniform black)"; but H. von Jhering (*The Ibis*, 1901, p. 14) says: "Nehr Korn says that the egg of *Cæreba cyanea* is black, and Allen (quoting Smith) says that it is white, with fine reddish spots. The description of Allen is in harmony with my specimens of the eggs of *Dacnis cayana* and with Euler's account of those of *Certhiola chloropyga*."

After wading through about fifty volumes, this is all the information which I have been able to bring together respecting the wild life of one of the most charming, abundant and widely distributed of American birds.*

Dr. Russ states that the male assumes female plumage in the winter; and Mr. Frank Finn has remarked upon the seasonal changes in this species, ("Journ. Asiat. Soc. Beng.," LXVII., pt. II., p. 64.)

About sixty head of this species were purchased in New York in 1873 and brought into the German bird market, where they fetched about 24 marks apiece. Previous to that date isolated examples had been received.

All the hens, with the exception of one possessed by a Mr. Heer, quickly died; but this specimen lived for over two years. They were fed upon a mixture of finely grated sweet almonds (from which the skins had previously been carefully removed by scraping with the finger-nails), crushed biscuit, and white sugar. Most of the examples are supposed to have died owing to their having been fed upon Nightingale food—yolk of egg, curd cheese, fruit, etc.

From time to time examples of this lovely species appear in the bird-market, and are generally snapped up by bird-exhibitors; if treated like Tanagers, that is to say, provided with a good insectivorous food and plenty of ripe soft fruit, I believe there is no difficulty in keeping them in good health and condition.

PURPLE SUGAR-BIRD (*Cæreba cerulea*).

Male purplish blue, with the wings, tail, lores, throat and under wing-coverts black. Female above dark green; lores rufous; below pale yellowish, striated with dark green; throat rufous; bill blackish; feet brown; irides dark. Habitat, Colombia southward to Amazonia, Eastern Peru, and Bolivia.

I have not come across any notes on the wild life of this species, excepting that Salmon states that its food consists of insects. Capt. Pam secured two specimens for the London Zoological Gardens in 1905, and therefore it seems better to mention it. Of course, it should be fed like other Sugar-birds and Tanagers, for it is not likely that, even in its wild state, it lives upon insects only.

BLACK-HEADED SUGAR-BIRD (*Chlorophanes spiza*).

Upper surface bright shining green, slightly tinged

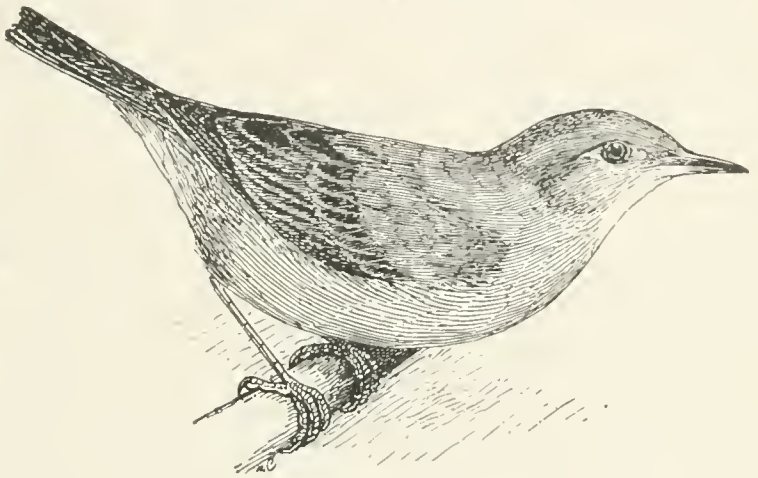
* Thienemann, however, says that the nest resembles that of the European Whitethroat, being constructed externally of root fibres of an orchis, the interior being neatly, but transparently, lined with hair-like dark slender grass stems; a little cobweb both outside and in.

with bluish; wing and tail feathers blackish with green margins; crown and sides of head black; under surface slightly bluer green than the upper parts; beak yellow, the culmen broadly black; feet black-brown; irides dark brown. Female grass-green; paler in the centre and sides below; upper mandible blackish, lower yellow; feet brown; irides brown. Habitat, Guatemala, southwards through Central and South America to S.E. Brazil and Bolivia.

Burmeister says that "in the forest regions of Central Brazil it affects open places at the borders of woods, is not very shy, and like the following species may be met with close to and even in the gardens of the settlers." (Syst. Uebers., Part III., p. 153.)

Bartlett states that this bird is "abundant throughout the country" in Eastern Peru (Proc. Zool. Soc., 1873, p. 260).

Mr. Walter Goodfellow (*The Ibis*, 1901, p. 319) says: "These birds mostly frequent the banana plantations, and by tying a bunch of the ripe fruit to one of the trees we managed to get a great number of them."



THE BLUE SUGAR-BIRD.

Russ quotes a long statement by Paul Mangelsdorff respecting his successes in trapping this bird in Brazil, but it unfortunately adds nothing to our knowledge of the life-history of the species.

C. Hagenbeck first imported this Sugar-bird into Germany in 1873, but the London Gardens had two specimens as early as 1848; subsequently Bekemanns, of Antwerp, on several occasions received single specimens. Prince Ferdinand of Bulgaria also in 1880 brought home this species on his return from his travels, but it seems never to have been so freely imported as its relatives *Cæreba cyanea* and *Dacnis cayana*; yet one would have supposed that a bird with so tremendous a range that it has been considered worth while to break it up into several more or less doubtful sub-species, and so common that Paul Mangelsdorff caught nearly a dozen with a trap-eage in less than a week, would have come more frequently. Mr. E. W. Harper imported a hen in 1907 which he priced at 50s., on account of its rarity in the market.

BLUE SUGAR-BIRD (*Dacnis cayana*).

The colouring of the male is shining blue, very slightly glossed with greenish; the forehead, lores, throat, mantle, and tail black; the wings black, edged with blue, ashy underneath; the bill is black, the feet reddish-brown, the iris brown.

The female is bright green, with blue head and pale pearly lavender throat; the wing feathers black, edged with green; the abdomen yellower than the rest of the body. Habitat, Central America southwards to Southern Brazil and Bolivia.

Paul Mangelsdorf says of this species:—"Like the other Sugar-birds, it is always seen in pairs, or after the completion of the nesting season in small flocks of three or four individuals together. It is then fond of mixing with flocks of *Callistes*, to which it has a similar call-note. Both kinds of birds answer one another, and follow the recognised *tsh*.

"It generally perches upon such trees and shrubs as have few branches, and which therefore afford it but little protection; consequently it can easily be secured with a catapult*, much more easily than the Yellow-winged, and, anyhow, quite as easily as the *Callistes* and *Euphonias*. The pair is faithful throughout the year. In short, when one sees one of these birds he will not need to seek long for the other; moreover, the female, which can scarcely be seen in its leaf-green colouring, always betrays itself quickly by its restlessness. How little cautious these small birds are is evidenced by the fact that they do not fear to pass over wide open spaces in undulating, hurrying flight. As a fruit-eater, like all its relatives, it can be found everywhere where sweet fruits exist; that is, at the time when the fruit is ripe on the wild fig-trees, which then afford food in abundance in the forest for all fruit-eaters of that kind. In gardens it affects the soft-fleshed kinds of fruit, *Jabutikava*, *Jambu*, Bananas, *Caju*, the fragrant fruits of the Passion-flower, Figs and Mandarines, whose thin rind its bill is able to pierce. On the China-orange-tree it searches the blossom, it only settles on the thick-rinded fruit if one of the larger fruit-eaters, a Parrot, a Hangnest, or Woodpecker, has left it half devoured. At the same time it feeds upon insects, and possibly also the honey and pollen of flowers. It is, moreover, especially fond of the little scarlet fruit of the size of a hempseed of a shrub which grows abundantly here; upon this I have seen it feasting in the company of *Callistes* and *Passerine* Parrotlets. A ripe banana-bush in like manner is palpably the greatest attraction to such birds, yet this delight is not too often theirs, because man, ever against the birds, cuts off the bananas while still in an unripe condition, and allows them to ripen afterwards when well protected."

The above, which I have translated from Russ' "Die Fremdländischen Stubenvögel," Vol. II., pp. 413-14, is all that I have discovered about the wild life of this species.

It has for many years been imported regularly to the Continental bird markets in small numbers, and is pronounced by Dr. Russ less delicate than *Careba cyanea*. He says: "Since the year 1873 I have received this Sugar-bird several times. At that time the old dealer, G. Lintz, of Hamburg, imported rarities of that kind, and from him I received the first male; for this however to the end I was unable to secure a female, and thus this solitary bird was of little interest to me, as he developed no peculiarities which made him seem especially valuable." In 1881 the dealer Fockelmann sent him several specimens, but they all proved to be males.

I believe that a female exhibited by Mr. Fulljames in 1897 was the first specimen shown in this country; in 1898 a fine male appeared at the Crystal Palace Show.

TANAGERS (*Tanagridæ*).

Tanagers are fruit-eating Finches (Dr. Sclater calls them *dentirostral* Finches, because the beak terminates in a little tooth which enables them to scoop mouthfuls out of soft fruits); they, however, also live partly on insects, of which some species are much more fond than others. In their diet and the character of their eggs they somewhat more nearly approach the Warblers; therefore Dr. Cabanis and Prince Bonaparte placed them in the same family with the Bush-creepers (*Myiophilidæ*) of South America; but ornithologists are now agreed as to their being Finches, with the exception of Prof. Ridgway, who refers certain genera, either wholly or in part, to the typical Finches (*Fringillidæ*), and others to the Bush-creepers (*Myiophilidæ*). I have no doubt that he is right in doing so, but in a work dealing with cage-birds for the use of aviculturists, to whom the correct feeding and treatment of birds is of more importance than classification, I think it would tend to confuse the reader if one deviated so greatly from the well-known classification followed in the Museum Catalogue of Birds.

These lovely birds did not reach this country in anything approaching fair numbers until the spring and summer of 1897; or, if from time to time a dozen or so came into the market, they were in such miserable condition, from the bad treatment which they had received during importation, that most of them soon died. Then, again, the foolish notion which, for many years, prevailed amongst bird-lovers that a delicate bird could be better looked after in a small cage than in a good-sized flight, effectually precluded the possibility of any Tanager so treated becoming either healthy, happy, or perfect in plumage. In my "Foreign Finches in Captivity" I pointed out the necessity for keeping these active fruit-eating birds in large flights where they could not only fly, but wash at will, where also they could get away from the stickiness and smell of their food; and, although I then had no practical experience in keeping Tanagers, I prophesied that if rationally treated these jewelled birds would prove no more delicate, greedy, or dirty than any other species.

The most freely imported Tanagers are the Scarlet, the Violet, the Black, and the Superb, all of which can at times be secured at a tolerably reasonable rate.

In the spring of 1897 I found that the price of Tanagers had so far fallen that I felt justified in putting my teaching to the test, and I am now able to assert positively that Tanagers are easy to keep in health and in perfect plumage; that they are not excessive feeders, are lively, tolerably intelligent and confiding; in fine, they are among the most delightful of cage-birds.

The feeding of Tanagers is similar to that of most other fruit-eating forms—a good insectivorous food must be provided, although comparatively little of it may be eaten, some of these birds hardly touching it excepting to pick out the yolk of egg; and, as fruit, ripe orange, pear, or split fresh figs and, of course, banana; meal-worms, smooth caterpillars, or spiders are regarded as a great treat and should be given when available.

Some of these birds eat and even husk seeds, in which respect they evince *Fringilline* affinities, but nevertheless do not necessarily belong to the *Fringillidæ*; on the contrary *Saltator aurantirostris* is specially noted by Ridgway as not a true Finch.

ALL-GREEN TANAGER (*Chlorophonia viridis*).

Head and neck bright green; back dark blue-green; wing-coverts bluish; nape, circle round eye and upper tail-coverts sky-blue; wing and tail-feathers black,

* Possibly a noose, but then the advantage of the scarcity of branches is not explained.



TANAGERS.

(1) VIOLET.

(2) SCARLET.

(3) SUPERB.

edged with green; under surface bright yellow; under wing-coverts and inner margins of wing-feathers white; bill dark leaden grey; feet bluish flesh-brown; irides brown. Female with the blue of the upper surface confined to the nape and rump, the back brownish olivaceous; the under surface yellowish green. Habitat, S.E. Brazil.

Nothing appears to be known respecting the wild life of this beautiful bird; indeed, excepting for Hudson's notes in "The Birds of the Argentine Republic" the few records of the habits of S. American birds when at liberty are widely scattered. Whether it is that students of South American birds have been utterly apathetic with regard to living birds, and therefore have not asked their collectors to note the wild life of the birds which they have shot, one cannot tell; but it is a fact that most of the papers published by great students of tropical American birds are of no interest, excepting to the cabinet naturalist; even Taczanowski in his three-volume work on the ornithology of Peru gives remarkably little information respecting the life history of Peruvian birds.

The London Zoological Gardens received this Tanager in 1875 and 1876, and again in 1895; Miss Hagenbeck received several examples in 1881, and Russ obtained one from Fockelmann; Mrs. Darviot received a pair in 1888, and various aviculturists in this country have from time to time had examples.

Why a bird which is blue, green, black, yellow, and white should have received the foolish and misleading name of All-green Tanager will, I suppose, never be known. Dr. Russ' name for it, "Blue-naped," would be far more appropriate, but I suppose if I had adopted it I should have been called to account, as I have been for altering other absurd names.

YELLOW-FRONTED TANAGER (*Euphonia musica*).

Crown blue, with a broad frontal yellow band bordered behind by a black line; nape and back, wings and tail purplish-black; rump and upper tail-coverts and under surface of body orange-yellow; throat shining black; axillaries pale yellow; under wing-coverts and inner margins of wing-feathers white; bill and feet black. Female olive green with blue crown and yellow-tinged front; below yellowish olivaceous. Habitat, San Domingo.

I can discover no field-notes relating to this species. Apparently only one example hitherto has been imported, and that was in 1871; it was sent to the Zoological Gardens of Amsterdam.

BLACK-NECKED TANAGER (*Euphonia nigricollis*).

The male nearly resembles that sex of the preceding species, but has a black frontal band, and the nape as well as crown blue; the inner margins of wing-feathers ashy; feet pale brown; irides dark. The female is olive green with blue crown and chestnut forehead; the rump paler than the back; below yellowish olivaceous, brighter on the abdomen. Habitat, South America from Colombia to Paraguay and Central Peru.

Mangelsdorff expresses his belief that this bird inhabits flat, hot mountainous country, because on his return journey he was able to secure an entire dozen of these birds in the markets of Rio and Bahia; he, however, failed to bring home any of them alive, as his stock of bananas went rotten, and so, for want of the necessary food, the birds died.

Walter Goodfellow (*The Ibis*, 1901, p. 459) says:—"They are generally met with in small flocks, and keep to the highest trees."

E. nigricollis occurs on the mountain of Roraima

(British Guiana), at a height of 3,500 feet, according to Mr. Henry Whitely (cf. *The Ibis*, 1885, p. 208).

Burmeister says that it occurs in the forests of the southern and eastern districts of Brazil, and thence down to Paraguay up to the foot of the Cordilleras (Syst. Uebers., III., p. 193). The London Gardens received this bird in 1866, 1892, and 1895; but it is very rare in the bird-market.

CHESTNUT-FRONTED TANAGER (*Euphonia elegantissima*).

"Above dark glossy purplish black; cap and nape blue; narrow front dark chestnut, bordered posteriorly by a narrow black line; below deep brownish orange red, throat black; under wing-coverts and inner edges of wing-feathers white; bill black; feet pale brown; whole length 4.5 inches, wing 2.5, tail 1.5. Female.—Above olive-green, cap blue; front chestnut; below yellowish olive, brighter in the middle of the belly; throat pale red. Habitat, Southern Mexico and Central America down to Panama." (P. L. Selater, "Cat. Birds," Vol. XI., p. 62.)

According to Russ, the traveller A. von Frantzius reported that this species occurred abundantly in the vicinity of San José in Costa Rica. "Here the young birds especially are caught by boys in July and August, brought for sale, and kept in cages for the sake of their song. They are then fed almost wholly upon ripe Pisang-fruits. When at liberty one finds them in clear spaces and upon withered trees, where they devour the fruit of a parasitical plant resembling our mistletoe." "It must be just this species which, according to the statements of A. E. Brehm, to his surprise uttered no bell-like sound, as Schomburgk describes, but a really charming varied song, and was at the same time a most industrious songster. In verity one may if one pleases best compare the song of this bird with that of the Black-headed Weaver or Textor. The song consists of a number of isolated sounds which are connected together by creaking and buzzing, of which a continuous whole is formed, not unpleasing in itself, while at the same time very peculiar. In this statement, which Brehm enunciated in January, 1873, there must be a great error, inasmuch as the song of the Textor is described in my 'Handbuch für Vogelliebhaber,' as also in all other reliable works, as consisting of chirping, snarling, hissing, and cackling sounds, and is neither more nor less than unpleasing."—Russ, "Fremdl. Stubenv." II., pp. 441-2.

It appears that formerly both Brehm and Russ received this species, but in the latter case only a single example of the male, obtained from Lintz, of Hamburg; it is not noted as having reached any Zoological Gardens.

GOLD-FRONTED TANAGER (*Euphonia flavifrons*).

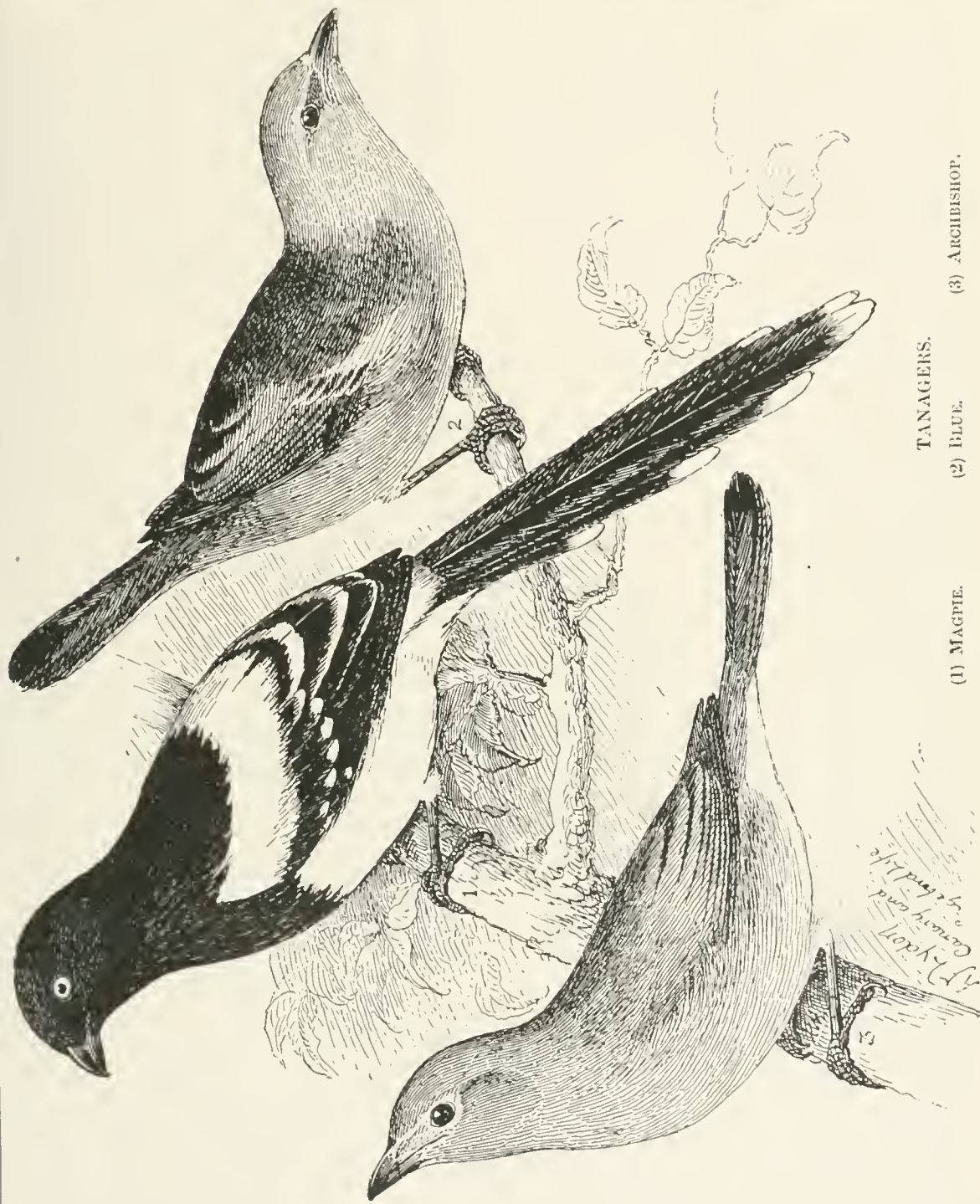
Dark olive-green; forehead broadly yellow, bounded at back by a black line; crown and nape blue; under parts olive-green, sides of head darker; the throat yellowish; axillaries pale yellow; under wing-coverts and inner edges of wing-feathers whitish; bill dark leaden-grey; feet brown. Female rather paler, but otherwise similar. Habitat, Lesser Antilles.

I am unable to discover any notes whatever respecting the wild life of this Tanager.

Two specimens of *E. flavifrons* from Dominica were presented to the London Zoological Gardens in May, 1889, by Mrs. Herbert, but I am not aware of any other instances of its importation.

GREENISH TANAGER (*Euphonia chlorotica*).

Above purplish-black; forehead to middle of crown yellow; below yellow with the throat purplish-black; wings below black with a large white patch



TANAGERS.

(1) MAGPIE.

(2) BLUE.

(3) ARCHBISHOP.

on the inner webs of the flights; tail below black, a large white patch on the inner webs of the two outermost feathers; bill and feet black. Female above grey-green, the front and rump yellow; below also yellow, ashy at centre of breast and abdomen; flanks and under tail-coverts pale yellow; under wing-coverts and inner margins of wing-feathers whitish. Habitat, Guiana, Brazil, Paraguay, Bolivia, and Eastern Peru; the Guianan form being typical, the others being subdivided into two or three local races or sub-species.

Respecting this species also I have found no notes on the life-history. The Zoological Society purchased a male in August, 1892. The name appears to me misleading; it applies better to the female than the male.

DWARF Tanager (*Euphonia minima*).

Glossy greenish black, purplish on neck and upper back; a broad yellow frontal band; throat purplish black; breast and front of abdomen yellow; hinder abdomen and under tail-coverts white; under wing-coverts and inner webs of flights white; tail below black, the inner webs of three outer feathers with a conspicuous white patch; bill leaden grey; feet black. Female above olive green, below yellowish olive; throat and centre of abdomen ashy white. Habitat, Guiana, Lower Amazonia, Colombia, Panama, and Central America up to Guatemala. (Sclater.)

I can discover nothing respecting the wild life of this little Tanager. Captain Pam brought home a pair from Venezuela in 1906 and presented them to the London Zoological Society.

VIOLET Tanager (*Euphonia violacea*).

Above, forehead and front of the crown bright yellow; the cheeks, back of neck, back, wings, and tail purplish blue-black; the under surface bright yellow, the legs and beak black, the upper mandible produced into a curved point; iris of eye hazel. Female above olive-green, below yellowish olive; wing-feathers white at base of inner webs. Habitat, Guiana, Trinidad, Lower Amazonia, and S.E. Brazil. According to Burmeister an inhabitant of the whole forest region of Brazil; he says that he found it abundantly at New Freiburg, as the bird is nowhere rare, and yet he gives no information respecting its habits. Mr. W. A. Forbes (*The Ibis*, 1881, p. 331) says that he found it sparingly both in gardens and in the vicinity of high forest, and he adds:—"This bird is kept commonly as a cage-bird by the Brazilians, who call it 'Guarratan,' a name, as already observed, also applied to several other small brightly plumaged birds."

Russ, quoting apparently from Mangelsdorff, though he does not say so, observes:—"In freedom the little bird is uncommonly lively and quick; sometimes when flying, and if it is leaping about on the fruit-trees one may hear its short tuneful call note. Its food consists of all kinds of fruit, and should the 'Organists'* after the breeding-season unite into flights or swarms they are capable of accomplishing considerable damage to banana, orange, and other like fruit-trees, inasmuch as they are voracious feeders. The nest is formed in a dense thicket, or in a tangle of creepers, usually large and not very neatly, of grass-stalks, fibres, fine tendrils and tufts of cotton and lined with delicate stalks. The clutch consists of three to five beautifully coloured and marked very thin-shelled eggs." (Fremdl. Stubenv., II., p. 434.)

The colouring of the eggs is not mentioned; but there is a long quotation from Mangelsdorff respecting the

wild foods of the bird, its charming song and power of mimicking the songs of other birds.

In captivity this Tanager is tolerably amiable, and, according to the late Mr. Abrahams, "a magnificent songster." Of this I can say nothing, inasmuch as although in 1897 I had the opportunity of purchasing this pretty little bird at a fairly reasonable price (that is, about double the usual German charge for the species), I already possessed the far more beautiful Superb Tanager, and therefore was not tempted to undertake another fruit-eating cage-bird; but it seems to me hardly likely that the generic name of *Euphonia* ("pleasant sounding") would have been given to a group of birds unless at least some of them were known to warble sweetly. The evidence of various owners of this bird varies somewhat as to the merit of its song, but we well know that individuals of a species differ considerably in talent.

THICK-BILLED TANAGER (*Euphonia lanirostris*).

Glossy blue-black, frontal half of head, extending to behind the eyes and rounded at back, as well as under surface of body, bright yellow; wings below black, with a large basal white patch on the inner webs of the feathers; tail below black, with a large white patch, not quite extending to the tips, on the inner webs of the two outer feathers; bill and feet black. Female above olive-green, below yellowish green, brighter on middle of abdomen and under tail-coverts. Habitat, Costa Rica, Veragua, Panama, Colombia, Venezuela, Upper Amazonia, Peru, and Bolivia.

I have no notes as to the wild life of the species,* but it would doubtless greatly resemble that of the Violet Tanager; with which, according to Russ, it has certainly been confounded by dealers. He says that in 1893 the wholesale dealer E. Reiche sent three examples to him for identification; they were not, however, in full adult colouring, and so he could not at first make anything of them; later he identified them at the Zoological Museum of Berlin. Apparently he kept a pair of these birds, which, before six months had passed, went to nest, but without result.

This species was obtained by the London Zoological Society in 1872, 1878, 1879, 1890, 1892, and 1906.

PECTORAL TANAGER (*Euphonia pectoralis*).

Above glossy blue-black; throat and breast the same colour; the latter with a yellow patch on each side; abdomen deep chestnut; wings below black with white coverts; tail below black; bill black; feet dark brown. Female above bright olive-green with a large dark grey patch on the nape; below, throat and breast grey; sides of breast and abdomen olive-green; under tail-coverts clear rufous. Habitat, Wood-region of S.E. Brazil (Sclater). Burmeister only tells us that this bird "has its home in the entire wooded region of Brazil, and is nowhere rare." Mangelsdorff says that it loves the forest, but occurs everywhere else like the Violet Tanager, and that its wild life is similar.

Russ says that in 1875 he received a male from Miss Hagenbeck, of Hamburg, and in the same year it reached the London Zoological Gardens. Paul Mangelsdorff in 1889 brought home a male from Brazil, but it shortly afterwards died; whether it has since appeared in the market I am unable to say.

BLACK-BELLIED TANAGER (*Euphonia cayana*).

Glossy bluish-black, with a yellow patch on each side of the breast; under wing-coverts and inner margins of flights white; bill black; feet dark brown. Female above bright greenish olive, with a dark grey patch on the nape; below grey; chin and sides of body below

* German trivial name for all the *Euphoniae*.

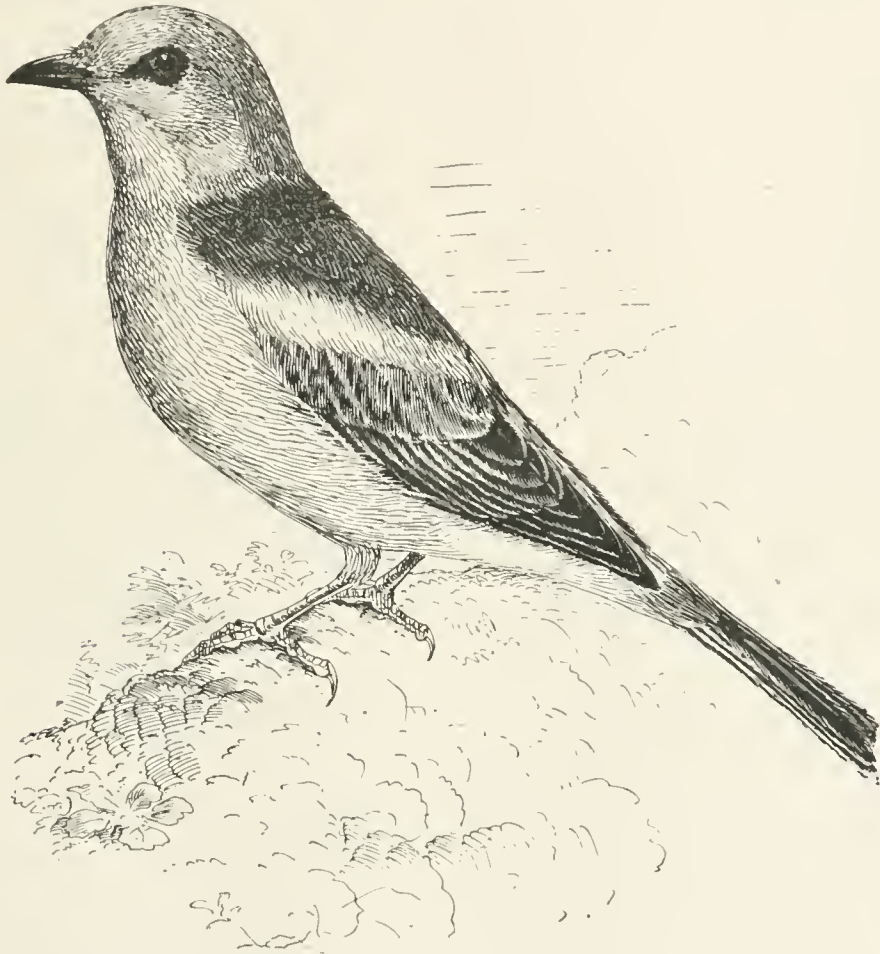
yellowish olive; under wing-coverts white. Habitat, Cayenne, Guiana, and Lower Amazonia (Sclater).

Desmarest says:—"This bird lives in the more open tracts of Guiana, in the rice-fields in the vicinity of human habitations."

G. Lintz, of Hamburg, imported two examples of this

yellowish; below ashy; sides of body and under tail-coverts yellowish olive; under wing-coverts white. Habitat, S.E. Brazil (Sclater).

Burmeister says that this species appears to be rare, but he gives no information touching its life-history. Dr. Russ does not mention it.



BLACK-BACKED TANAGER.

Tanager in 1874, and in 1875 Miss Hagenbeck sent two specimens to Dr. Russ; it does not, however, appear to have come into the London markets hitherto.

LEAD-COLOURED TANAGER (*Hypophaea chalybea*).

Above dark bronzy bluish green; forehead yellow; below yellow; upper part of throat green; under wing-coverts white; flights and tail below dark ashy; bill dark leaden; feet brown. Female above olive-green; forehead, rump, and margins of wings and tail more

The London Zoological Gardens acquired a pair by purchase in August, 1892.

JAMAICA TANAGER (*Pyrrhuloxia jamaica*).

Above bluish-grey; below paler; middle of abdomen yellowish; axillaries pale yellow; under wing-coverts and inner webs of flights white; under tail-coverts whitish; bill dark leaden; feet dark brown. Female above pale green, head bluish-grey; below pale bluish-grey; the flanks washed with green. Habitat, Jamaica.

According to Gosse (Birds Jam., p. 238) this species is an industrious songster, and utters very distinct sounds, penetrating, long-drawn, as well as deep-sounding tones reminding one of the cry of a Falcon. Apart from these sounds it also utters a pleasing melodious song.*

Dr. Russ received this Tanager from the dealer Lintz, but it appears to be very rare in the bird-market.

We now come to what Dr. Sclater regarded as the more typical Tanagers (*Tanagrinae*), which he again subdivided by the character of the bill—slender, strong, bristly, weak. Whether it is natural to place such different types in one sub-family, is happily a question which I am not called upon to decide.

RED-BELLIED TANAGER (*Tanagrella velia*).

"Above velvety black; forehead, sides of head, external edgings of wing and tail feathers, and upper tail-coverts bright blue; lower back shining silvery green; below bright blue, irregular collar across the throat black; middle of belly and crissum chestnut-red; under wing-coverts white; bill black, feet dark brown; whole length 4.10in., wing 2.8, tail 2. Female similar, but not quite so bright in colouring. Habitat, Cayenne and Guiana" (P. L. Sclater).

Obtained on Roraima at a height of 3,500 feet (cf. *The Ibis*, 1885, p. 209). I have not, however, succeeded in discovering any notes on its habits.

An example was presented to the London Zoological Society by Sir William Ingram in July, 1893, and I have an impression on my mind that this is not the only known instance of its importation; indeed, a dead specimen was sent to me in the flesh in 1900.

BLUE-AND-BLACK TANAGER (*Tanagrella cyanomelana*).

Velvet black, with the forehead bright blue; centre of crown and lower back pale silvery green; upper tail-coverts and outer margins of wing and tail feathers bright blue; sides of head and throat bright blue; a black collar; under surface of body greyish-blue with the centre of abdomen and under tail-coverts chestnut-red; under wing-coverts white; bill black; feet dark brown; irides brown. Female similar in colouring, but with a longer, more slender and tapering bill. Habitat, S.E. Brazil.

Burmeister gives no information respecting the wild life, nor can I discover any notes elsewhere.

A specimen of this beautiful species was purchased by the London Zoological Society in February, 1892, and birds identified with this species have more than once appeared at our bird shows.

BLACK-BACKED TANAGER (*Piprida melanonota*).

Male above violaceous blue; forehead, lores, and sides of head velvet black; interscapular region blue-blackish; wings and tail black edged with blue; body and wing-coverts below clear ochraceous; flights and tail-feathers below blackish; bill black; feet brown (Sclater), leaden (Taczanowski); irides clear reddish brown. Female above dark brown, the head and rump tinged with blue; wings and tail black edged with blue, forehead, lores, and sides of head black; below clear ochreous. Habitat, Paraguay, S.E. Brazil, Bolivia, Peru, Ecuador, and Venezuela.

Taczanowski ("Ornith. Pérou," Vol. II., p. 451) remarks that "at Tambillo they were always high up in the tops of trees."

Of the examples shot by Goodfellow on his journey through Colombia and Ecuador (*The Ibis*, 1901, p. 460) he says:—"Iris in all cases bright red. The stomachs contained berries."

This is all that I have discovered connected with the

wild life. Two specimens reached the London Zoological Gardens in 1866.

At recent bird-shows the Black-shouldered Tanager (*Calliste melanonota*) has been called Black-backed; this is very confusing, and ought to be avoided.

The genus *Calliste* is the largest and most beautiful group of birds in the family. Dr. Sclater says of it:—"Salmon found three species of *Calliste* nesting in the State of Antioquia. The nest is open, made outwardly of moss, and lined with fine roots, fibres, and horsehair. The eggs are pale greenish in colour, more or less thickly spotted and blotched with various shades of brown."—"Cat. Birds," Vol. XI., p. 95.

PARADISE TANAGER (*Calliste tatau*).

Male above velvet-black; with the crown and sides of head bright grass-green; lower back bright crimson, shading into orange on the rump; lesser wing-coverts turquoise-blue; other coverts and primaries edged more or less with purplish-blue; throat purplish-blue; breast and greater part of abdomen turquoise-blue; hinder abdomen and under tail-coverts blackish; bill black; feet dark brown or black; irides brown. Female similar, but smaller, the colours slightly duller, the head less golden in hue; the crimson or scarlet on back more restricted, and the blue on the throat more restricted in adult birds. Habitat, Cayenne, Guiana, Rio Negro, Colombia, and N.E. Peru.

Burmeister remarks of this Tanager that it "inhabits the forest region of Brazil to the lower Amazon, and goes southward about as far as Pernambuco, at most exceptionally to Bahia; northwards the species extends over Guiana, Venezuela, and New Grenada, but no nearer to Peru. It is certainly not found at Rio de Janeiro; there one meets with the bird in the hands of dealers, but not at liberty." ("Syst. Uebers.," III., p. 188.) He seems, however, to be wrong as regards Peru, there being a male from Huambo in the British Museum series.

In his "Naturalist in the Guianas," p. 190, Eugène André gives a coloured illustration of this Tanager, and remarks:—"My men collected some good *Callistes*, among which were two males and one female of the beautiful *Calliste paradisea*." Naturally he gives no information respecting the wild life of the species.

On Mirumi mountains, Roraima, this bird occurs at an elevation of from 3,000 to 4,000 feet, according to Henry Whitley. (*The Ibis*, 1885, p. 209.)

In Peru, according to Stolzmann, it occurs sometimes in considerable flocks in high forest or open spaces, but apparently not at a higher elevation than 4,500 feet; in the stomachs of those he obtained he found seeds and insects. (A. Taczanowski, "Ornith. Pérou," II., p. 459.)

On account of its surpassing beauty this is a favourite cage-bird in South America, and therefore it is the more surprising that it should so rarely be imported into the bird-markets of Europe. It has not been exhibited by the London Zoological Society, nor have I ever seen a living example in any bird-shop or at any show; but in 1893 the dealer Fockelmann imported some specimens into the German market, and several years later a single specimen found its way to the Zoological Gardens of Berlin.

SUPERB TANAGER (*Calliste fastuosa*).

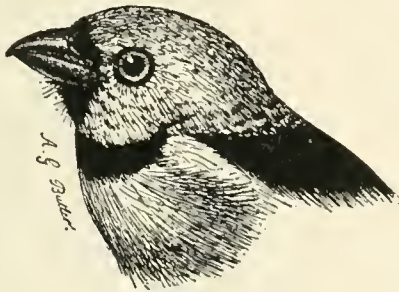
Head and neck brilliant emerald green, the forehead black; upper back velvet-black, lower back and outer borders of outer secondaries brilliant orange-cadmium; lesser wing-coverts green, almost like the head; outer coverts purple; wings and tail black, the primaries, inner secondaries and tail feathers edged with purple; under surface mostly blue; the chin black, then a band

* Not having Gosse's book in my library I quote from Russ.

of green joining that on sides of head; a broad black gorget narrowing on sides of neck and almost joining the black of the back; breast and front of abdomen silvery blue, gradually deepening behind into rich purplish ultramarine; under surface of wings and tail slaty-blackish; bill black, feet blackish; irides brown. Female with all the green colouring, especially on the head and nape considerably bluer; the feathers on the nape generally showing more of their black bases; the lower back and rump (when birds of equal age are compared) considerably more golden, less orange; the bill shorter, less tapered. Habitat, Province of Pernambuco.

When collecting at Pernambuco Mr. W. A. Forbes only twice met with this bird—a female which he shot and a second specimen which he recognised by its orange rump at the top of a large tree; a third was brought to him whilst he was staying at Cabo. No facts respecting the wild life seem to have been made known, excepting that it frequents the tops of tall trees and only descends to a lower level to feed upon sweet fruits and to nest.

From a study of the Superb Tanager in captivity we are able to add that the call-note of this bird is a shrill excited chirp, sometimes repeated several times in succession, usually when flitting from perch to perch or running on a ledge and shuffling its wings like an Accentor. Its ordinary song is harsh and Weaver-like,



THE SUPERB TANAGER.

but when first arousing in the early morning it sometimes sings a very pretty little reedy song, recalling that of the Indigo Bunting.

I purchased my first specimen of this lovely bird on May 28th, 1897, and lost it on December 12th, 1898; as food it received some of my regular soft mixture, half an orange, and a third of a banana daily. In the summer it ate mest orange, and in the winter all the banana, or nearly so. It usually began its meal by selecting a piece of bread (of which it was very fond) from the mixture, and flying to a perch to eat it. Then it had a bite at the orange, sometimes a piece of banana, and a fragment of egg; but it ate very little at a time, and was anything but a greedy bird. It was, however, very fond of dried ants' cocoons, though not always keen on mealworms. It much preferred spiders, as do all insectivorous birds.

The year following its death, on March 1st, and in April I purchased half a dozen, several of which were unhappily not in a very healthy condition; of these one died in May, one in June, the other four lived well into 1900, but only one of them survived until near the end of September, 1901; unless they all had the germs of disease in them when purchased, I see no reason why they should not have lived for many years.

When freshly imported this species is usually in

rough plumage; he should be extremely wild and nervous if in good health. The feathering, however, is soon replaced. With the first moult the last trace of wildness disappears, and the bird becomes friendly and absolutely without a flaw; at least that is my experience.

A cage of two feet cubic measure is none too large for a Superb Tanager, and if thus housed, regularly fed every day, and provided with a good-sized bath, it will soon become a revelation of beauty such as the cabinet naturalist has never even dreamed of.

In my younger days these charming birds were confined in small cages, such as would generally be considered suitable for a Canary; so that, having no space for exercise, no chance of getting away from their more or less sticky food, and no bath, they soon became grubby, dragged, unhealthy, and naturally died so quickly that the late Dr. Russ and others regarded them as dirty, greedy, and extremely delicate; such, however, is far from being the case when they are properly looked after. I have sometimes thought that my Superb Tanagers would have lived longer if not encouraged to eat bread, but then my Scarlet Tanagers have had it also, and have never suffered in consequence.

THREE-COLOURED TANAGER (*Calliste tricolor*).

Male above shining golden green; crown greenish-blue; forehead and upper back black; lower back deep cadmium yellow or golden orange; wings black; bend of wing, false wing, and broad tips to primary and outer secondary coverts purplish-blue; primaries narrowly edged with bluish green; secondaries broadly edged with golden green; tail-feathers black, edged with bluish green; chin broadly bluish green, followed on throat by a broad black patch united by a narrow black stripe to the black of upper back; breast and front of abdomen smalt blue; flanks, lower abdomen, and under tail-coverts golden green; under surface of wings below brownish ashy; under surface of tail bluish ashy; bill black; feet blackish; irides brown. Female similar, but duller in colouring, the back more or less spotted with green; the bend of the wing greener. Habitat, S.E. Brazil, provinces of Bahia, Rio, Sao Paulo, and Goyaz. (Sclater.)

Burmeister observes that this species, "like the preceding, lives in small troops in thick forest, whence from time to time its short call-notes may be heard, but otherwise it does not reveal itself. The bird is not particularly shy, and even comes into the gardens of the settlers." ("Syst. Ueb." III., p. 187.)

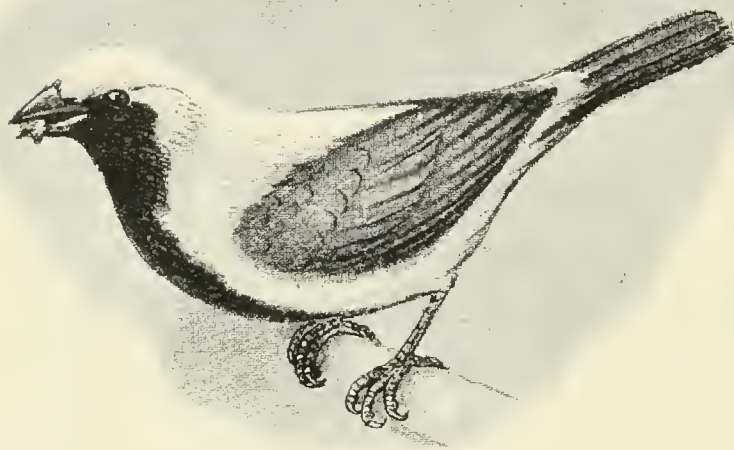
Euler says that "its nest was situated exclusively on banana trees; sometimes between the leaf-stalk and the stock, sometimes between the unripe fruits of the depending fruit-clusters, or even on the sliced flatness of a stock which has been cut off. The outer wall of the nest is constructed of flower-stalks and grasses, the egg-cavity of reed and other broad smooth leaves; the latter is lined at the bottom with delicate grass-stalks and hairs. On the outside, especially below, a decoration of dry leaves, strips of bark and bast, as well as flicks of cotton; moss is entirely absent. Diameter of the cup 8.9 cm., height 7 cm.; diameter of the cavity 7 cm., depth 3.5 cm. The clutches consist of from two to three eggs, which are pale flesh-coloured and sprinkled densely with darker spots; upon this general marking are, at almost equal distances apart, about a dozen broad larger yellow-brown splashes, which are rendered conspicuous by fine black scrawled lines. Length 20 mm., breadth 10 mm." (J.F.O., 1867, p. 410; cf. Russ, "Fremdl. Stubenv." II., p. 446.)

Dr. Russ says that this is one of the rarest Tanagers in the German bird-market; that a specimen was once exhibited at the Hamburg Zoological Gardens, and in

1891 Miss Hagenbeck imported several. In the list of animals exhibited at the London Gardens (ninth edition) there is a record of specimens received in 1884, 1889, 1890, and 1895; apparently these were not the first examples which they exhibited; of late years also it has been one of the Tanagers usually present at bird-shows; so that it would seem not to be excessively rare in the London market.

FESTIVE TANAGER (*Calliste festiva*).

Male above bright grass-green; crown blue; forehead and upper back black; sides of head and broad collar on back and sides of neck scarlet; wings and tail black, edged with bright green; tips of lesser wing-coverts crossed by an orange bar; below bright grass-green, chin black; throat blue; under surface of wings and tail ashy, under wing-coverts white. Female similar, but duller; upper back varied with green; bill black; feet brown (black according to Burmeister);



YELLOW TANAGER.

irides brown. Habitat, S.E. Brazil: provinces of Pernambuco, Bahia, Rio, and S. Paulo. (Sclater.)

According to Burmeister this bird "loves the mountain forests of the higher situated regions."

W. A. Forbes says (*The Ibis*, 1881, p. 332): "I only saw this beautiful *Calliste* once, when I fell in with a small party of it in a patch of virgin forest near Quipapá, and succeeded in shooting a fine male. Eyes brown."

Dr. Russ says that this Tanager has only once been brought alive to Europe, a specimen having reached the London Zoological Gardens in 1875; but in 1904 Mr. Astley purchased a specimen in Genoa, and it is probable that others have been imported.

SPOTTED EMERALD TANAGER (*Calliste guttata*).

Male above bright green; feathers of head, upper back, and wing-coverts black bordered with green; forehead and feathers encircling eye golden yellow; lores black; below white; sides of throat and breast marked with oval black spots; flanks tinted with green; under tail-coverts yellowish; bill blackish, the lower mandible leaden; feet dark brown. Female similar, but smaller and less distinctly marked. Habitat, British Guiana, Venezuela, Trinidad, Northern

Colombia, and Isthmus of Panama north to Costa Rica. (Sclater.)

This Tanager occurs on Roraima up to from 3,500 to 4,000 feet, according to the late Henry Whitely (*The Ibis*, 1875, p. 209).

I have discovered no facts about its wild life.

Captain Pam brought home two specimens of this charming Tanager from Venezuela in 1905, and presented them to the London Zoological Society for exhibition in their Gardens.

YELLOW TANAGER (*Calliste flava*).

Above cadmium yellow; wings and tail black edged with bluish; below deeper yellow, the lores, sides of head, chin, throat, breast, and middle of abdomen black; under wing-coverts blackish; bill and feet blackish (brownish-grey according to Russ); irides brown. Female greenish yellow; wings and tail black, edged with greenish; below paler, middle of throat and abdomen whitish; sides of throat and breast slightly marked with dusky; flanks and under tail-coverts ochraceous; according to Burmeister the forehead and crown are rust yellowish and the remaining upper surface ash-grey, greenish on the back; the chin and throat whitish, the abdomen and vent rust yellowish; bill and feet paler than in the male. Habitat, S.E. Brazil, from Pernambuco to Rio Grande do Sul. (Sclater.)

W. A. Forbes (*The Ibis*, 1881, p. 332) says: "This beautiful, though peculiarly coloured, bird is, perhaps with the exception of *Tanagra cana*, the commonest Tanager in the provinces I visited. I met with it everywhere, from Recife to Garanhuns; and though never seen in numbers, it appeared to be fairly abundant. It frequents chiefly gardens or plantations of fruit-trees, but I have also seen it in thick forest country. It was abundant in the garden at

Estancia, frequenting the orange-trees, sapotis (*Achras sapota*), and other fruit-bearing plants; and I have also met with it feeding on the flowering shrubs of the virgin forest. It goes about either singly or in small companies, and most of the specimens seen are either immature or females. The adult males are usually met with singly, though I have seen three perched close together in the same tree. I failed in my endeavours to bring living specimens to England, though I got one as far as St. Vincent. Eyes brown; feet lead-grey."

Dr. Russ says of this species: "In the year 1874 I received two males and a female from G. Lintz, of Hamburg, and shortly after the opening of the Berlin Aquarium (1869) two males arrived there, moreover Mr. Linden possessed it. Some time later, in the year 1893, the wholesale dealer, G. Bosz, forwarded to me two Yellow Tanagers, palpably an adult and a young male; in the same year Miss Chr. Hagenbeck wrote to me: 'The bird is not altogether so rare as you think. I have received it from time to time, most recently in August, 1891; you will remember that at that time I sent some "little Priests" and Cardinals for your inspection. Together with these came

* The German name for the species of *Spermophila*.

the Yellow Tanagers, and also several specimens of the Three-coloured, which were immediately purchased by various Zoological Gardens. Mr. C. Ayer, of Maintz, received the last specimen of the Yellow Tanager from me in September, 1891. In October, 1894, Mr. A. Fockelmann again imported it." ("Fremdl. Stubenv." II., p. 448.)

Mr. L. W. Hawkins exhibited this species at the Crystal Palace in 1903.

BLACK-CHEEKED TANAGER (*Calliste cayana*).

Shining ochre yellow; crown coppery reddish; sides of head black; wings and tail blackish, edged with bluish green; throat dark bluish; under wing-coverts white; bill bluish black; feet brown, leaden according to Taczanowski. Female duller in colouring, the throat very slightly tinged with bluish. Habitat, Cayenne, Guiana, Venezuela, Colombia, and E. Peru.

Mr. Henry Whitely obtained this Tanager on the Merumé Mountains, Roraima, at from 3,500 to 4,000 feet. (*The Ibis*, 1885, p. 209.)

Mr. W. L. S. Loat, writing upon the birds of British Guiana, says that the pretty little Tanager (*Calliste cayana*) has a great fondness for the fruit of the guava. (*The Ibis*, 1898, p. 565.)

As Taczanowski says no word about the wild life of this bird in his "Ornithologie du Pérou," the above meagre information is all that I have been able to get together.

This Tanager was not imported alive until 1907, when Mr. E. W. Harper brought home a pair and valued them at £7.

CHESTNUT-BACKED TANAGER (*Calliste pretiosa*).

"Above, whole head, neck, and middle of back dark coppery chestnut; wing-coverts and lower back bright ochraceous; wings and tail black, edged with bluish; below greenish blue, middle of belly brighter and more bluish; lower flanks, thighs, and crissum chestnut; bill black; feet brownish black; whole length 6.3 inches, wing 3.3, tail 2.3. Female.—Above dark green; wings and tail blackish, edged with green; head and upper back suffused with coppery chestnut; below paler and less pure, middle of belly whitish; crissum tinged with rufous. Habitat, Southern Brazil and Paraguay."—P. L. Scater, "Cat. Birds," Vol. XI., pp. 114, 115.

Mr. A. H. Holland obtained what Dr. Scater identified as a young female of this species on the Estancia Sta. Elena, Argentine Republic (see *The Ibis*, 1896, p. 315); it was probably new to the fauna, as it does not appear in Scater and Hudson's work on the Republic. In *The Ibis* for 1899, we read that Mr. Holland had again secured the species; this time a fully adult male labelled, "Bill, legs, and iris black," p. 305.

I can find no records of the wild life, but in *The Agricultural Magazine*, 1st ser., Vol. IV., pp. 159-161. Mr. Percy W. Farmborough gives an account of a specimen which he had in captivity for about three years. It was kept in a box-cage of sensible dimensions—3 feet 6 inches long, 2 feet high, 20 inches from front to back. Mr. Farmborough supplied no regular soft food, but merely a mixture of hard-boiled yolk of egg and ants' eggs, with various fruits and insects with their larvae. No doubt this was all that was necessary, for, as a general rule, Tanagers eat very little soft food; they pick out the egg and perhaps a few ants' eggs, but for the most part confine their attention to the orange or pear and banana supplied to them, and any insects or spiders that they can get.

BLACK-SHOULDERED TANAGER (*Calliste melanonota*).

Above, head and neck deep coppery chestnut; upper back black; lower back and wing-coverts bright

ochraceous; wings and tail black, with narrow bluish edges; below greenish blue; lower flanks and under tail-coverts chestnut; under wing-coverts white; bill and feet black-brown (Scater), feet brownish flesh-coloured (Russ); irides brown. Female above dark green, paler on rump, head and neck washed with coppery chestnut; wings and tail blackish with green edges; under surface paler, middle of body whitish; under tail-coverts pale rufous. Habitat, S. Brazil and Panama.

As with many other Tanagers I have been unable to find any notes on the wild life. Dr. Russ says that it first reached the London Zoological Gardens in 1873, and subsequently in 1888 a traveller chanced to bring it home. Mr. S. M. Townsend exhibited a specimen at the Crystal Palace in February, 1906, and again later in the same year.

LAVENDER-AND-BLACK TANAGER (*Calliste brasiliensis*).

Above black, front of crown to above eyes (a narrow frontal band excepted), sides of neck, wing-coverts, edges of primaries, rump and upper tail-coverts clear shining lavender; neck and flanks varied with black; middle of abdomen, under wing and tail coverts white; bill black; feet shining black-brown; irides brown. Female similar, but smaller, rather duller, the lavender more confined to the tips of the feathers. Habitat, S.E. Brazil.

Burmeister says that it is not rare in the forest regions of Brazil, and Natterer met with it in the forest in March on tolerably high trees, and found fruit and seeds in the stomachs of those he shot.

Russ speaks of this as one of the rarest birds in the German bird market, but says that Carl Guderer, of Vienna, and Heinrich Möller, of Hamburg, have each on one occasion sent him examples for identification; it has been exhibited at the London Zoological Gardens.

In the Zoological Society's List (ninth edition) this species is called "Blue-and-black Tanager," the same trivial name being given to *Tanagra cyanocephala*; Dr. Scater also describes it as bright blue, whereas Dr. Russ says it is bluish violet. As a matter of fact it is neither, but the purest lavender. If describers would only try to call to mind the flowers after which many colours are named they would be less likely to speak incorrectly of them. The common cornflower is bright blue, some pansies are bluish violet, but lavender is neither one nor the other, it is a bluish relative of lilac so far as its tint goes.

YELLOW-BELLIED TANAGER (*Calliste flaviventris*).

"Above black; fore part of cap (except narrow front), sides of head, margins of larger wing-coverts, and rump bright blue; smaller upper wing-coverts bright turquoise blue, narrow outer margins of primaries bright greenish blue; below blue, varied on the throat and flanks with black; middle of abdomen and crissum pale sulphur-yellow; under wing-coverts white; bill black; feet dark brown; whole length 5.4 inches, wing 2.7, tail 1.8. Female like the male. Habitat, Lower Amazonia, Cayenne, Guiana, Venezuela, and Trinidad." (P. L. Scater.)

I have discovered no account of the wild life of this species. Mr. E. W. Harper sent a specimen to the London Zoological Gardens in 1906, but I do not know of any other importations of this Tanager.

BLUE-WINGED TANAGER (*Calliste cyanoptera*).

Above and below silvery green; head and neck black; wings black; flights and tail-feathers edged with blue; under wing-coverts white; bill black; feet brown. Female above green, brighter on the rump; wing and

tail feathers black edged with green; below paler, the throat and breast ashy; middle of abdomen buffish white, the flanks greenish. Habitat, Venezuela and N. Colombia.

Here, again, I am unable to get any information respecting the wild life. Captain Pam presented five specimens of this pretty *Calliste* to the London Zoological Gardens in 1906.

WHITE-CAPPED TANAGER (*Stephanophorus leuccephalus*).

Above deep blue, brighter on sides of head, lesser wing-coverts and rump; flights and tail-feathers black with bluish edges; forehead, lores, and chin black; centre of crown crimson, behind which the crown is white to nape; bill brownish black; feet brown; irides brown. Female slightly duller. Habitat, Southern Brazil, Paraguay, Uruguay, and Northern Argentina.

Mr. Hudson remarks ("Birds of Argentine Republic," Vol. 1, p. 38):—"It is a summer bird in Buenos Ayres, where it makes its appearance in spring in the woods bordering on the Plata river, and is usually seen singly or in pairs. The nest is built in a tree ten or twelve feet from the ground, and is somewhat shallow, and lined with soft, dry grass. The female lays four eggs, white, and spotted with deep red. During incubation the male sits concealed in the thick foliage close by, amusing itself by the hour with singing, its performance consisting of chattering disconnected notes uttered in so low a tone as to make one fancy that the bird is merely trying to recall some melody it has forgotten, or endeavouring to construct a new one by jerking out a variety of sounds at random. The bird never gets beyond this unsatisfactory stage, however, and must be admired for its exquisite beauty alone."

The Zoological Society of London purchased a specimen of this species in July, 1884, which was alive in 1903, and although Dr. Russ only mentions it as a *Coccothraustes*; most frequenters of British bird shows will remember Mr. Swan's fine specimen, first exhibited at the Crystal Palace, I believe, in 1902. In subsequent shows it was one of the birds one looked for and commented upon its condition. It is quite likely that other specimens may have been imported among the numerous consignments of birds from the Argentine Republic.

The species of *Tanagra* are almost, if not quite, as beautiful as those of the genus *Calliste*, and I should judge them to be hardier. They should be fed in the same manner.

SILVER-BLUE TANAGER (*Tanagra canal*).

Pale bluish-ash, deeper on the back, bluer on the rump and sometimes on the breast; wings and tail blackish, edged with greenish-blue; the upper wing-coverts glittering blue; bill dark horn colour; feet black. Female similar; probably duller. Habitat, Southern Mexico, through Central America to Colombia, Venezuela, Ecuador, and North Peru.

Salmon says (Proc. Zool. Soc., 1879, p. 500) that this bird builds in orange trees; the eggs are rich brown, densely blotched with darker spots, especially at the larger end.

Mr. W. Goodfellow (*The Ibis*, 1901, p. 466) says:—"Common in the hot forest regions of Western Ecuador, at Santo Domingo, Guanacillo, and other places, where they frequent the banana-plantations and the fruit-trees around the huts. Specimens from the foot of the hills seem to be less blue than those from farther down into the forests. Local name, "Azulejo." This species is mentioned by Russ as rare in the trade, but it has been exhibited at the London Zoological Gardens.

Russ mentions *T. episcopus* as having once been imported, but he says it was in draggled plumage; I think therefore it may have been wrongly identified.

BLUE-SHOULDERED TANAGER (*Tanagra cyanoptera*).

Above bluish-grey tinged with green; wings and tail blackish, edged with greenish-blue; lesser wing-coverts shining blue; below paler, especially in the centre of abdomen; bill deep leaden; feet brown. Female rather duller, the lesser wing-coverts greener. Habitat, Southern Brazil, Paraguay, and Bolivia.

According to Burmeister, who, judging by Dr. Selater's synonymy, confounded this species with *T. sayaca* (as he admits that he also did in the "Catalogue of Birds"), this Tanager "lives in the tops of palms, and feeds upon fleshy berries and soft insects. It comes much into the neighbourhood of the settlements and is not rare there, particularly in gardens where there are palms."

This species also has been exhibited at the London Gardens, and has been imported both into Italy and England, the Contessa Baldelli and the Rev. B. Hemsworth having both owned specimens.

SAYACA TANAGER (*Tanagra sayaca*).

Above bluish-grey; wings and tail blackish, edged with greenish-blue; lesser wing-coverts dull greenish-blue; below paler bluish-grey; bill leaden; feet brown; Female similar, but probably duller. Habitat, S.E. Brazil and Argentina.

According to Hudson (Arg. Rep. 1, p. 39), this species "appears in spring, in small flocks or parties of three or four birds, in the woods on the shores of the Plata. The male utters a series of peculiar squeaking notes by way of a song."

It is a strange thing that Mr. Hudson, who praises the stopper-screwing song of the Grey Cardinals, has nothing but abuse for the songs of Tanagers; yet in my experience these brilliant birds, though they utter some harsh notes, are capable of uttering many that are far purer and less excruciating than those of the Cardinals.

PALM TANAGER (*Tanagra palmarum*).

Olive green; the head paler, the back darker, as also the edges of the wing-coverts; wings and tail brownish-black; the flights and tail-feathers edged with dark olive; wing-feathers below creamy-white towards base; bill dark horn-colour; feet brown. Female smaller, but similarly coloured. Habitat, S. Brazil and Bolivia northwards to Trinidad, Venezuela, Colombia, Panama, and Costa Rica.

Salmon (Proc. Zool. Soc., 1879, p. 500) observes that "the nest is placed in the fork of a shrub or low tree, and formed of grass-stalks mixed with roots and fibres, lined and ornamented on the outside with green moss." "Eggs pale whitish, very thickly freckled with red-brown spots; axis 95, diam. 65."

Whitely met with this species on Roraima at an elevation of from 3,000 to 4,000 feet (*The Ibis*, 1895, p. 210).

In Mr. im Thurn's garden in British Guiana, Mr. W. L. Selater notes *T. palmarum* as common (*The Ibis*, 1887, p. 317). Mr. W. Goodfellow (*The Ibis*, 1901, p. 467) in his account of a journey through Colombia and Ecuador, says:—"These birds are tame in their habits, and frequent the vicinity of the huts."

Dr. E. A. Goeldi, describing the birds of the C. pim River (*The Ibis*, 1903, pp. 478, 479) says:—"In the palm-trees in front of the fazenda was a continuous movement of glittering Tanagers (*Tanagra palmarum*) and other Passerine birds." "Approaching the negroes' cottages, I noted in the higher trees many Tanagrines

forms (*Tanagra palmarum*, *Rhamphocelus jacapa*, *Calliste*).

This bird also has been exhibited at the London Zoological Gardens.

ARCHBISHOP Tanager (*Tanagra ornata*).

Above dull olive, rather brighter on the rump; head and neck all round glossy smalt blue, showing dull brassy reflections in the living bird; wings and tail blackish, edged with bright olive; lesser coverts bluish shading into yellowish-green and broadly tipped with yellow (forming a short conspicuous bar in some examples); under surface of body brownish grey, washed with blue on the breast and flanks; under wing-coverts creamy white; inner margins of wing-feathers ashy; bill black; feet leaden blue; irides dark brown. Female rather paler in colouring. Habitat, S.E. Brazil.

Burmester says that this Tanager is abundant in the woodlands of the central coastal tract, especially at Bahia and its neighbourhood; lives like all Tanagers near the settlements, comes into gardens and is not very shy.

In *The Aricultural Magazine*, new series, Vol. III., pp. 179-184, I gave an account (illustrated by a beautiful coloured plate) of two males of this charming species which were sent to me at the end of the year 1903 from Italy. These birds were forwarded in an open cage and supplied with apple; the journey occupied nine days and they reached me on a bitter frosty morning, yet both were living.

As there was a marked difference in the size of the two birds and the stouter specimen was distinctly duller in colouring than the other, I naturally supposed them to be a pair, and kept them together in a moderate-sized flight; they, however, quarrelled frequently and when one went down to feed the other attacked it; I therefore transferred them to a larger flight, where at first they were more friendly; then the larger bird became disagreeable and attacked the smaller and brighter one; day by day it showed more and more evidences of ill-health; this ended by its throwing up a quantity of blood and the following day, just a month after it reached me, it was dead—doubtless the exposure with no variety of food had been too much for it. The other bird, which for a few days was subject to sneezing fits, entirely recovered and is in perfect health and plumage as I write.

In 1905 I described the call-note of this Tanager as a thin sibilant *tseet*, but the song as beginning "with a sort of descending chatter, like the quarrelling of Sparrows. Then follows a series of thin, reedy notes, with one or two clear, sharp whistles thrown out spasmodically by way of a change, recalling the recording of a Dominican Cardinal's song." I have, however, since discovered that it has another and distinctly a more meritorious though rather shrill song, which I recorded as the bird repeated it, as follows:—*Tup-cheer, tup-cheer, tup tu-ti-tup, cheer, te-cheer*, sung rapidly and loudly. The Archbishop Tanager is extremely swift in its movements, and when strangers approach its cage and begin to stare at it, its flight backwards and forwards from perch to perch is so rapid that it is impossible for them to see what it is like. On the earth it moves by swift hops, shuffling its wings like a Hedge Acentor or Pekin Nightingale.

This bird also has been exhibited by our Zoological Society, and of late years specimens have appeared at various bird shows.

STRIATED Tanager (*Tanagra bonariensis*).

Above, back black; rump orange; wings and tail blackish edged with blue; head blue; lores and orbital region black; breast orange, fading into yellow on the

abdomen; bill horn-colour, lower mandible whitish, feet brown, irides hazel. Female, greyish-brown, paler below; rump and throat yellowish. Habitat, South Brazil, Uruguay, Paraguay, Argentina, and Bolivia.

Hudson says (Arg. Repub., Vol. I., p. 39): "It is a migratory species, which appears in Buenos Ayres in small flocks in summer. Both sexes have a long, sharp, reedy call-note; the male also possesses a song composed of notes with a peculiar bleating sound."

Mr. F. Withington, in a paper on the Birds of Lomas de Zamora, Buenos Ayres, says: "Migratory, arriving here about the middle of May, when they become fairly plentiful. They are often seen in small lots of five or six, but generally more of them are males than females. They are very partial to gardens and plantations." (*The Ibis*, 1888, p. 462.)

Mr. A. H. Holland also observes: "Arrives here in great numbers in May, but departs in September. Many of the males are in immature plumage, which closely resembles that of the hens." (*The Ibis*, 1891, p. 17.)

This bird has been exhibited more than once at the London Zoological Gardens.

SCARLET Tanager (*Rhamphocelus brasilins*).

This lovely bird measures about 6½ in. in length, its colouring is dazzling carmine-red, the wings black, the wing-coverts being flecked with carmine, the tail black, the legs and upper mandible black, the lower mandible white, tipped with black, the iris of eye orange-vermilion. The hen is of a reddish brown colour, with dull brown wings. Habitat, S.E. Brazil.

In its wild state this species affects low-lying moist localities, and as a rule is seen singly hopping about in bushes or undergrowth; it nests in reedy grass, forming its habitation very loosely of dead reeds and rushes, sometimes with an intermixture of moss, and lining the somewhat shallow cup with the flowering heads of the reed; the eggs, two to three in number, are bright blue-green, dotted and scrawled all over with dark pitchy-brown markings. The hen incubates for thirteen days, and both sexes feed the young.

This bird is tolerably hardy, and has even been bred in a large garden aviary in Belgium. As it is rather inclined to be vicious, it should never be associated with smaller or weaker birds.

As a cagebird the Scarlet Tanager is quite beautiful enough to be well worth keeping, and is no more trouble than any other fruit-eating species. I purchased two males in 1897 at a moderate price, and turned them into a large flight-cage together; they are both in excellent health as I write this account more than ten years later. I had always been told that the Scarlet Tanager lost the brilliant carmine of its plumage in captivity, the general colouring becoming a brick-red; I must also admit that I have seen one or two rather dull-coloured specimens at some of our shows; but my two cock birds are still as brilliant as when first imported. I think a good deal depends upon the food supplied.

My birds have a soft-food mixture consisting of stale breadcrumbs, egg, powdered biscuit, and either "Century Food" or "Improved Ceko" well stirred together and slightly damped; they also have banana daily, and either half a ripe orange or half a pear between them daily, with an occasional mealworm, other insect, or spider.

One would suppose that there was risk in keeping two cocks together; but this is not so. They certainly wrangle at times, perhaps pull out a few feathers, and on one occasion my larger bird temporarily lamed the other by severely biting one of its feet, but after two or three months it recovered completely.

Most observers state that the Scarlet Tanager only

utters harsh notes, but this is a libel; the song is not strikingly beautiful, but includes some bright, clear notes. In *The Avicultural Magazine*, 1st series, Vol. IV., p. 188, I render it as follows: "Whip, whip, whip, whip; tzeewee, tzeewee, tzeewee; cheo, cheo, cheo, cheo, cheo, cheo, cheo; tzerwiss, tzerwiss, tzerwiss; cheo, cheo, cheo, cheo, cheo, cheo, cheo." After all these years I see no reason to alter this rendering. Mrs. Musil, a German lady, who compared the song to that of the European Robin, can have had no ear for music; the song remotely resembles that of the White-throated Finch, but has not the least likeness to that of any of the members of the sub-family *Turdinæ*.

MAROON TANAGER (*Rhamphocelus jacapa*).

Velvety black washed with crimson; head, neck, throat and breast deep crimson, gradually shading into black on the abdomen; under wing-coverts black; bill black with a bluish grey patch at base of lower mandible; feet black. Female brownish-black; the face, rump, and under surface of body rosy reddish; bill and feet brown. Habitat, Guiana, Venezuela, Trinidad, Colombia, Ecuador, Peru, Upper and Lower Amazons, and Brazil (Sclater).

According to Burmeister, in old age there is a naked patch caused by the dropping out of the feathers between the eye and base of beak; he gives no information respecting the wild life.

Taczanowski ("Ornith. Pérou," Vol. II., p. 492) says: "The eggs collected at Huambo and at Corral, in January and February, are oval and elliptical, short, with smooth surface; the ground-colour is very pale bluish green, sprinkled with black dots and spots, more or less regularly rounded, sometimes irregular patches, generally few in number, usually more numerous at the broad extremity, rare at the apex, occasionally equally distributed over the whole surface. Length 22.4-23.8 to 16.7-17.2 millimetres in breadth." The author also quotes the following from Stolzmann: "A lively and animated bird like the other species of the genus. It occurs chiefly in open spaces, such as plantations or the margins of rivers, never penetrating into the depth of the forest. One generally sees them in pairs or small companies consisting of a few individuals. It nests in the rainy season from January to March. The natives of the country call it *guanchaco*, a name applied at Cutervo to *Trupialis militaris*."

In 1905 Mr. E. W. Harper sent four specimens of this species to the London Zoological Gardens, and in 1907 he brought home a pair which he priced at £7. Russ says that a few have been received singly in Bordeaux.

SUMMER TANAGER (*Pyrranga aestiva*).

Crimson, rather paler on underparts; back darker; wings ashy, with deep crimson edges; tail ashy, washed with crimson; under wing-coverts rosy; bill pale horn-colour; feet brown. Female, above olive, wings and tail blackish, with olive edges; below yellowish. Habitat, N. America in summer; southwards throughout the Antilles, Mexico, and Central America to Colombia, Ecuador, and Peru in winter.

Mrs. Olive Thorne Miller, in her "Little Brothers of the Air," pp. 159-162, gives a charming account of the discovery of nests of this bird on the banks of the Black River, which is well worthy of perusal, but does not enter sufficiently into details for scientific purposes. A full description of the nidification will probably be found in Baird's "Birds of N. America," p. 301. In Iowa, according to C. R. Keves ("Ornithologist and Oologist," Vol. IX., 1884, p. 34), the number of eggs to a clutch is always four.

Prince Maximilian speaks of finding the nest on one

occasion at the junction of the Ohio with the Mississippi, but it was placed in the fork of a branch of a tree, the main stem of which was so thin that he could not examine it closely. Henry Whitely obtained *P. aestiva* on Roraima at an elevation of 3,500ft. (*The Ibis*, 1885, p. 211.)

Mr. Walter Goodfellow says (*The Ibis*, 1901, p. 468): "Three males and one female from Canzacota, West Ecuador (6,500 feet), Quito (10,000 feet), and Baeza, East Ecuador (5,500 feet). Our Consul at Quito told me that he had never seen more than three at that altitude during the thirty years he had lived there. The specimen we shot in the garden during our stay at the Consulate had been in the neighbourhood for several days, but was very shy and tried to conceal its bright coat in the trees as much as possible." Dr. Russ says that this species is rarely imported and only singly in the German market, nevertheless a pair may be found here and there in several birdrooms, but he says that it is not present in any zoological gardens, and that even the London Gardens have not exhibited it.

RED TANAGER (*Pyrranga rubra*).

Scarlet, the feathers white at base; wings and tail black; bill smoky horn-coloured, the tomium paler; feet reddish smoke-brown; irides encircled by a paler cinnamon margin. Female above yellowish olive; wings and tail blackish green, with more olive margins; throat brighter, remainder of under surface of a paler yellowish green. Habitat, Eastern N. America in summer; throughout the Antilles and Central America to Colombia, Ecuador, Peru, and Bolivia in winter.

According to Gentry (vide Russ, "Fremd. Stubenv.", Vol. I., pp. 649-50), this Tanager appears in the States as a summer visitor from early in May until the last week of September, and is useful in destroying insects and all sorts of vermin. In isolated human locations it is shy and nervous, yet on the other hand in the vicinity of human habitations is bold and confiding, so that one may approach within a few steps of it. In woodlands it seeks its food for hours together upon the outermost branches of the highest trees; apple and pear trees especially attract it. One also sees it in company with Migratory Thrushes and Changeable Troupials seeking for grubs on the soil behind the ploughman. Seeds even of soft plants it never eats. After the breeding season they separate into pairs and families and wander about apart. One may judge it likely that in spring, when they return, the sexes separate, since the males certainly arrive earlier. The latter then sit on the summits of the highest trees singing by the hour together, doubtless with the object of attracting the females flying overhead. Here and there one sees a male high up on a great tree close to a very noisy thoroughfare, undisturbed by the traffic, and just as here so in the broad forest it always chooses the summits of the highest trees. Its cry, *chichar*, resounds repeatedly and is very illusive, as if from a distance, even though the bird may be quite close to us. Later, when the trees are clothed with foliage, this Tanager, in spite of its splendid colouring, well knows how to conceal itself, at any rate in the forest, whereas in fruit and other gardens it always shows itself openly, just as though it were well aware that here it is safer from birds of prey. The song of the male, which is ventriloquial in character and is delivered in rather slow time, may be fairly expressed by the following syllables:—*chi-chi-chi-char-éé-char-éé-chi*. I have heard it compared with that of the Baltimore Oriole, but I cannot discover the slightest resemblance between the two.

The breeding season starts at the end of May or beginning of June, and he keeps himself always at a

certain distance, just as though he wished to avoid betraying the nest by his conspicuously-coloured plumage. At the approach of danger both sexes utter a gentle rippling chirrup, which consists of weak, pleasing notes, whilst they slip away through the densest tangle of branches and leaves, and if anyone attempts to rob the brood, the female boldly dashes towards him, almost at his head. The nest is built by the latter alone, only in four days, always on a horizontal bough of a tulip tree, or an oak in a grove or light thicket, or even on an apple tree in a garden. It consists of stalks, straws, leaves, and similar materials, is loosely constructed and lined with rootlets, grasses, bast, and fibres. An egg is laid daily until the clutch of four or five eggs is complete; the female alone incubates, and is not once fed by the male, she also has to feed the young, hatched after twelve days, alone, and moreover with all sorts of soft insects, their eggs and larvæ. After about two weeks the young leave the nest, and a week later are able to attend to themselves. Only one brood is reared in each year. It should be noted that this species is extremely sensitive to cold. If in May after the hot days in April some frosty days occur, as usually happens here, these birds suffer greatly, and many die.

Russ says that this species has been imported singly by Mr. Reiche and Miss Hugenbeck; Mr. L. Nesmirak, of Prague, had a pair for a considerable time, but could not induce them to breed. Dr. Russ received a male in winter plumage from H. Möller, of Hamburg, and two years later a female for identification from the younger Lintz.

BLACK-AND-RED Tanager (*Pyrrhura erythromelas*).

Scarlet; forehead, lores, orbital space, chin, wings, and tail black; upper back more or less varied with black; lesser and greater wing-coverts tipped with white, forming two white bars; bill and feet black. Female, above olive; wing-coverts as in the male, wings and tail brownish-black; under surface more yellow than the upper. Habitat, Southern Mexico and Central America to Panama.

Doubtless the wild life would be similar to that of the preceding species, but my library does not enable me to discover any definite statements respecting it.

The London Zoological Society secured three specimens in 1907, by exchange with the New York Zoological Park.

LOUISIANA Tanager (*Pyrrhura ludoviciana*).

Above yellow; head and neck reddish, least so at the sides; middle of back, wings, and tail, black; a yellow band across the median wing-coverts, and a yellowish white band across the greater coverts; tertials more or less edged with whitish; bill horn-colour, greenish below; feet lead-colour; irides brown. Female, above olive-green, below yellowish; upper back dusky, with olive margins to the feathers; wings and tail dark brown; the coverts as in the male. Habitat, Western N. America, Mexico, and Guatemala.

J. G. Cooper says of this Tanager ("Geol. Surv. Calif.," Vol. I., p. 146, 1870):—"I noticed the arrival of this beautiful bird, near San Diego, in small parties on the 24th of April, and they reach Puget Sound about May 15th. The males come some time in advance, clothed in their full summer livery, and are more bold and conspicuous than the females which are rarely seen without close watching. They frequent trees, feeding on insects and berries, and singing much in the same manner as the other species, and more like the Robin and Grosbeaks than any other birds.

"I saw none of them in the Coast Range towards Santa Cruz, or at Santa Barbara, in summer, and sup-

pose they must seek the higher and more northern regions at that season. Their nest and eggs have not been described. I found this species in September, 1860, in the higher Rocky Mountains, near the sources of the Columbia, in lat. 47 deg., and they probably remain until October within this State. In the fall, the young and old, all in the same dull greenish plumage, associate in families, and feed on elderberries and other kinds, without that timidity which they have in spring. Although found as far east as the Rocky Mountains, I saw none along the Colorado Valley, probably because they migrate more in the line of mountain ranges."

Russ says that this bird is rarer than all other hitherto imported species. In 1873 he received a male from Karl Guder, which some months later died in summer plumage; to his knowledge it had not been previously imported, nor had it come subsequently, but he thinks there is every prospect of a bird so widely distributed becoming commoner in the trade.

SAIRA Tanager (*Pyrrhura saira*).

Bright rosy-scarlet; upper back and edges of wings and tail darker; under wing-coverts rosy-red; bill dark leaden; feet dark brown. Female olive; front and sides of head and body below yellow. Habitat, S.E. Brazil.

Burmeister says this bird is "abundant and everywhere on the region of the Campos of inner Brazil, but only singly or in pairs; a stupid little nervous bird, easily recognisable by its colouring, and is one of the daily sights of the traveller in Minas Geraes."

Russ gives no reason for including this bird in his work; but it has been exhibited at the London Zoological Gardens, and (owing to the restrictions now placed upon the exportation of N. American birds) is far more likely to come into our market than the other species of *Pyrrhura*.

It is probable that all the species of this genus lay greenish eggs spotted with reddish, especially towards the larger end, and that their nests are somewhat loosely constructed with an outer framework of twigs or stalks and leaves, and an inner lining of softer materials. They all feed upon insects and fruit.

BLACK Tanager (*Tachyphonus melaleucus*).

Above and below glossy blue-black; upper lesser wing-coverts and the under wing-coverts white; bill and feet black. Female and young cinnamon-brown, paler on under-surface; bill dark horn-brown, feet brown; irides dark. Habitat, "Costa Rica, Panama, and S. America down to S.E. Brazil and Peru" (P. L. Slater).

Mr. W. A. Forbes (*The Ibis*, 1881, p. 333) says of this bird:—"It is usually seen singly or in pairs, the black male with the chestnut female. The stomach of one I examined contained insects."

Russ says that Sonnini de Manoncourt observed this Tanager at home on the nest and also besides in the nesting season, always finding it living in pairs in dense scrub, but never associated in numbers. He furthermore informs us that all the time it has no song, but only utters its shrill, piercing call-note. Its food consists of small fruits and insects. Concerning the wild life, says Russ, nothing more definite has hitherto been published. The same might be said with regard to the majority of tropical American birds, and therefore the attention which is being paid by aviculturists to their life in aviaries is the more useful.

Dr. Russ, however, overlooked T. K. Salmon's notes ("Proc. Zool. Soc.," 1879, p. 503):—"Food, fruit. Builds in high grass. Eggs, pale salmon-colour, with a few

large isolated dark brown spots; axis 1.0, diam. .71." The egg is figured on Plate XLII., fig. 5.

In 1906 Mr. W. E. Teschemaker was successful in breeding the Black Tanager in his aviaries, and has published an interesting account of his experience in *The Avicultural Magazine* (New Series, Vol. IV., pp. 351-6), accompanied by a photograph of the nest and eggs.

The nest was built of hay at the top of a thick privet hedge; it was firmly woven, unlined, and almost as deep as a Reed Warbler's. The first egg was laid on the 17th June, and incubation commenced at once; on the 18th and 19th additional eggs were laid, completing the clutch of three; the ground-colour was delicate cream, the shell being smooth and thin; in shape they were a true ellipse; they were marked with irregular black spots and a few fine wavy lines. The male perched by the nest singing while the hen sat, and his song, uttered with closed beak, consisted of a low, intermittent warbling; so that de Manoncourt's information, besides being meagre in the extreme, is proved to be inaccurate. Incubation lasted thirteen days; the newly-hatched young were lead-coloured and covered with black down. The larger of the two that hatched left the nest on July 12, being then like his mother, excepting that he was a trifle paler and had bluish feet; the second, which left the nest the following day, was rather deeper in colour. The young were partly fed with fruit.

Mr. Teschemaker very kindly sent me the two young birds on August 13th, but unhappily they were delayed so long on their journey from Devonshire to Kent that they were more than half dead with hunger and thirst when they came to hand. I turned them into a large flight cage, but they never recovered their health, were constantly quarrelling, and consequently their plumage suffered considerably. On October 13th the hen died, and the cock followed on the 15th: a sad conclusion to a most interesting and instructive experience.

LITTLE BLACK TANAGER (*Tachyphonus luctuosus*).

Male very similar to the preceding, excepting for its inferior size and the white on the upper side of the wing covering the lesser coverts. Female different; olive, with greyish head, whitish throat, yellow under-surface, but white under wing-coverts. Habitat, "Nicaragua, Costa Rica, Panama, and South America down to Trinidad and Guiana on the east and Bolivia on the west." (P. L. Slater.) The wild life has yet to be studied, but Dr. Russ considers this bird to be far more amiable and less aggressive than its larger relative.*

It has only been very rarely imported, and singly by Bekemans, whilst Gudara once obtained five males from a small dealer in Bordeaux. One of these five Russ purchased for his birdroom, where it lived for about nine months, but was unable to survive its first moult.

CRESTED TANAGER (*Tachyphonus cristatus*).

Male, above black, crown covered by a scarlet or orange erectile crest, lower back and rump yellowish rust-red, lesser upper wing-coverts white, below black, with a yellowish rusty stripe on the upper part of the throat; bill black; feet bluish flesh-coloured; irides dark brown. Female rusty-brown washed with olive; rump yellowish brown; under-surface yellowish rust-coloured; bill brown; feet brownish flesh-coloured; irides dark brown. Habitat, Guiana, Cayenne, Colombia, Amazonia, and Brazil to Rio Grande do Sul.

Of the wild life Buffon says that it is very common in Guiana, lives on small fruits, has a shrill Finch-like call, but utters no similar song; is never found in large woods, but only on ploughed fields. Burmeister says it is abundant in Rio de Janeiro, but more so in the valleys on its banks than those of the mountains.

As Russ observes, considering its wide distribution, throughout which it is nowhere rare, it is astonishing that the bird trade has not imported it frequently and in great numbers, yet it has only been occasionally imported, and singly by Bekemans, of Antwerp.

CROWNED TANAGER (*Tachyphonus coronatus*).

Glossy black; crown with a small median crimson crest; lesser upper wing-coverts and under wing-coverts white; bill dark leaden; feet brown. Female, above rusty-brown; head slightly ashy; below paler; the throat and breast with ashy freckles; under tail-coverts rusty-brown. Habitat, S.E. Brazil. Burmeister says that this species is "common in all the woodlands of South Brazil, especially abundant in St. Paulo and Sta. Catharina" (Syst. Ueb. III., p. 166).

Russ does not mention this as an imported species, but Mr. L. W. Hawkins exhibited a pair at the Crystal Palace in 1905. It has also been exhibited at the London Zoological Gardens.

The Tanagers which follow are of somewhat sombre hues, and some of them have been regarded by Russ as Grosbeaks.

FASCIATED TANAGER (*Diucopsis fasciata*).

"Above grey; lores and sides of head black; wings brown; coverts black, crossed by a broad white band; tail blackish, edged with brown; beneath white, sides passing into cinereous; under wing-coverts white; bill plumbeous; beneath whitish; feet clear brown. Whole length 6.7 inches, wing 2.9, tail 2.7. Young, above brown; lores and sides of the head rather darker; below not so clear." "Habitat, S.E. Brazil" (P. L. Slater.)

Dr. Slater does not distinguish the sexes, which are alike in plumage, but "the beak of the female is much wider from base to middle than in the male" ("How to Sex Cage-Birds," p. 32). Herr H. von Jhering obtained this bird at Rio Grande do Sul (*The Ibis*, 1899, p. 434), but he tells us nothing about its wild life, nor have I been able to discover anything respecting it. It has been exhibited at the London Zoological Gardens.

BAHAMA TANAGER (*Spindalis zena*).

Above black; a chestnut band on the nape; wing-coverts and secondaries broadly bordered and primaries narrowly edged with white; terminal halves of outer tail-feathers largely white, remaining feathers white-tipped; a long eyebrow streak, a broad moustachial stripe and the chin white; centre of throat yellow, bounded on each side by black patches which nearly unite below; breast chestnut in front, shading into yellow at back; front of abdomen also yellow; lower abdomen and under tail-coverts white; sides ashy; under wing-coverts white; bill leaden, paler below; feet blackish. Female, above olivaceous grey; wings and tail brownish black margined with white, below paler; the lower abdomen, under tail and wing coverts white. Habitat, Bahamas.

Why *Spindalis*, which has a similar scheme of colouring to the genus *Saltator*, has been placed between the brilliant Tanagers of the genera *Tanagra* and *Rhamphocelus* I do not understand, though Dr. Slater says it is hardly different in structure from *Tanagra*; but surely the beak is more Finch-like? Ridgway says of it: "Culmen distinctly (usually

* Salmon (P.Z.S., 1879, p. 503) tells us only that its food consists of fruit, etc., which we already know.

strongly) convex," whereas he describes *Tanagra* as having the culmen "nearly straight for basal half or more, more or less strongly convex terminally; the tip slightly uncinat." ("Birds of North and Middle America," II., pp. 62 and 54). Nevertheless he leaves it in the *Tanagride*.

Mr. J. Lewis Bonhote (*Avic. Mag.*, n.s., Vol. I., pp. 19, 20) observes of this bird: "The commonest and perhaps the handsomest of all the birds of the barren is the Bahama Finch (*S. zena*), known locally as the Cock Robin. It is to be found in some numbers round every clump of bush, and seems to feed chiefly on berries, the black berry referred to when dealing with the Grosbeak* being also a favorite with this bird." "I have never found the nest of this species, but from the large preponderance of males at Abaco last March I feel pretty certain they must have been nesting at the time. Flying about in small flocks they may generally be found by listening for the call-note, which is a high-pitched 'twee' frequently uttered, especially during the early spring, when the males are very pugnacious; it does not appear to have any noticeable song. As this bird is frequently caught alive I have on several occasions had one in my possession, but they did not live long, and I never succeeded in getting them on to artificial food, but have had to feed them entirely on wild berries; they get very tame, but their beauty is their only attraction."

This pretty Tanager was exhibited by Mr. Dewhurst at the Crystal Palace in 1906 and 1907, and I have to thank Mr. Allen Silver for calling my attention to the fact.†

GREAT SALTATOR (*Saltator magnus*).

Above olivaceous, the sides of head ashy with a weak white eyebrow stripe; chin white with a black stripe on each side; under surface of body pale ashy varied with fulvous, especially on middle of throat and under tail-coverts; bill blackish; feet brown; irides brown. Female similarly coloured. Habitat, "Panama southwards to Bolivia and South Brazil" (P. L. Slater). Taczanowski ("Orn. Pérou," II., p. 540) quotes Stolzmann for the following: "It keeps in pairs in open spaces in the low scrub. Its call-note is a very strong and piercing whistle. It nests in January and February. The nest is placed very low down. The eggs resemble those of *Aphobus chopi*."

W. A. Forbes (*The Ibis*, 1881, p. 334) says: "I only once met with this bird, which I shot in thick and high forest some miles from Parahyba."

Mr. T. K. Salmon describes the nest as being "composed of small sticks and fern-stalks, and placed in low underwood," and the eggs as "pale greenish blue, with a zone of black spots and hair-lines round the larger end." ("Proc. Zool. Soc.," 1879, p. 505.) Dr. Slater concludes ("Cat. Birds," XI., p. 282) that this is an unvarying description of the nest and eggs of the genus; but it would seem, from Dr. E. Lönnberg's notes on *S. latidavius*, that the latter lays a greenish white egg, "spotted all over with irregular reddish-brown, or almost red, spots and with fainter bluish violet or bluish grey blotches" (*The Ibis*, 1903, p. 455). If he is right, it is probable that *S. aurantirostris* lays similar eggs. Mr. E. W. Harper gave four examples of this fine Tanager to the Zoological Society of London in 1906.

ALLIED SALTATOR (*Saltator similis*).

Above ash-grey; upper back, greater wing-coverts

and secondaries washed with olivaceous green; eyebrow stripe white; throat white with a black line on each side; under surface of body ochraceous yellow, ashy on the flanks; under wing-coverts pale ochraceous; bill leaden grey; feet brown. Female resembling the male in colouring, but doubtless differing in form of beak. Habitat, South Brazil and Corrientes, Argentine Republic.

I have discovered no notes on the wild life of this bird. It has been exhibited at the London Zoological Gardens.

ORANGE-BILLED TANAGER (*Saltator aurantirostris*).

Above greyish washed with olivaceous, excepting on the tail, which shows faintly indicated darker bars; the outer feathers varied with white at tips; brown of head slaty-blackish; flights dark grey-brown with olive-ashy margins to outer webs; lores, sides of head and throat black; eyebrow-stripe fulvous at first, but becoming white in front with advanced age; under surface buffish white on chin, becoming gradually clear sandy buff on throat, bounded behind by a broadish arched black band which connects the black at sides of throat; breast from band greyish cinnamon washed with olive gradually passing into the clearer pale coffee-tint of the abdomen; under tail-coverts deeper; flights and tail-feathers below ashy; under wing-coverts pale buff. Bill at first dark horn-colour washed with leaden grey, but bright ochre-yellow tipped with black in the adult bird; feet leaden greyish; irides dark brown. Female slightly duller in colour and without the connecting black collar across the back of the throat; eyebrow stripe permanently fulvous; bill broader from base to middle and never of the uniform clear ochreous colouring of that of the male. Habitat, Paraguay and Uruguay and Northern and Western Argentina.

"In Corrientes d'Orbigny found this *Saltator* breeding in the month of November. It frequents the shrubs and bushes in the neighbourhood of the houses, and makes an open nest of roots, not of very neat construction. The eggs are two or three, greenish blue, slightly spotted at the larger end with blackish and reddish zigzag markings. The egg is figured in 'D'Orbigny's Voyage' (Pl. XXVII., Fig. 3)." (Slater and Hudson, "Argent. Ornith.," Vol. I., p. 42.)

I published an account of this Tanager in *The Avicultural Magazine*, n.s., Vol. II., pp. 335-339, illustrated by a coloured plate representing adult and old males.

The London Zoological Society was probably the first to exhibit this Tanager; but, like most of the Tanagers, its appearance in the bird market seems to be spasmodic; a few turn up one year and then perhaps several years pass and not a specimen is received. In 1903 an Italian brought a consignment of Argentine birds to London, from which my friend Mr. Housden, of Sydenham, secured three examples of *S. aurantirostris*, a male and two females. I purchased the male and fed it in the usual manner; but, as the collector had previously fed it upon canaryseed only, its constitution was undermined before it came into my possession in September; its health fluctuated somewhat, but in November it died.

Though neither brilliantly coloured nor a songster (though Dr. Russ imagines that it must be), this species is pleasing on account of its confiding nature.

In the same year, 1903, Mr. Swaysland received four young examples of this species, their bills being in the horn-coloured stage, one of which he exhibited at the Crystal Palace under the impression that the dark-billed form represented a distinct species.

* Referred to in the previous volume (1st ser., Vol. VIII., p. 285).

† The dealers' names of "Cuban Tanager" and "Bahama Bird" applied to this species are absurd. It does not come from Cuba, and *Bansua* is probably a corruption of Bahama.

MAGPIE TANAGER (*Cissopis leveriana*).

White; the head, neck, upper back, wings, and tail black; the lesser wing-coverts, spots at the ends of the greater coverts, margins of outer secondaries and ends of tail-feathers white; throat and breast, the latter tapering away to middle of abdomen, black; bill and feet black. Female said to be similar, and for lack of authentically sexed females in the museum collection I was unable to discover how to distinguish them. Habitat, Guiana, Venezuela, Colombia, Ecuador, Peru, and Bolivia. (P. L. Slater.)

Taczanowski quotes the following from Stolzmann ("Orn. Pérou," II., pp. 537-8): "This extraordinary Tanager is found by the banks of rivers and margins of forests. As a rule it is very rare and much more wild than all the other Tanagers. Its call-note so closely resembles that of the *Rhamphocelus*, that I was unable to distinguish it. The song is short, like that of *Molothrus* and of *Carenochrous latinuchus*. One generally comes across them in pairs travelling across the dense thickets on the borders of the woods. I have seen them in March feeding on sweet fruits which then attract a number of different birds." A fair number of examples of this Tanager has been exhibited from time to time at the London Zoological Gardens, and of late years I have seen it at bird shows. Amongst Tanagers it is very remarkable and striking, its black and white plumage being especially distinctive.

BLACK-HEADED TANAGER (*Schistochlamys atra*).

Front half and sides of head and throat to middle of breast black; wings and tail blackish with grey edges; upper surface otherwise grey; under surface paler, the centre of abdomen and under wing-coverts whitish; bill leaden grey, black at tip; feet black; irides reddish-brown. Female not differentiated. Young ashy olivaceous, paler on under surface, wings and tail brown with olive margins. Habitat, South America from Trinidad and Colombia to Bolivia and South Brazil.

W. A. Forbes (*The Ibis*, 1881, pp. 334-5) says that "this bird was rather abundant round Parahyba in the neighbourhood of the forest. It is nearly always seen singly near, but not in, high forest, and perches in the larger trees that rise above the bushes and undergrowth of the *capovira*. It appears to be not at all shy, and is easily shot. The sexes are similar."

"I bought a single living specimen of this bird in a shop in Recife, and brought it safely to London, where it is still living in the Zoological Society's Gardens. I never before saw it living in Europe."

Dr. Russ, who calls this a *Corcothraustes*, quotes a modified version of Forbes's account, and notes it as one of the birds not hitherto received in the trade, but which he thinks, sooner or later, certain to come.

FELICINOUS OR SMOKY TANAGER (*Pitylus fuliginosus*).

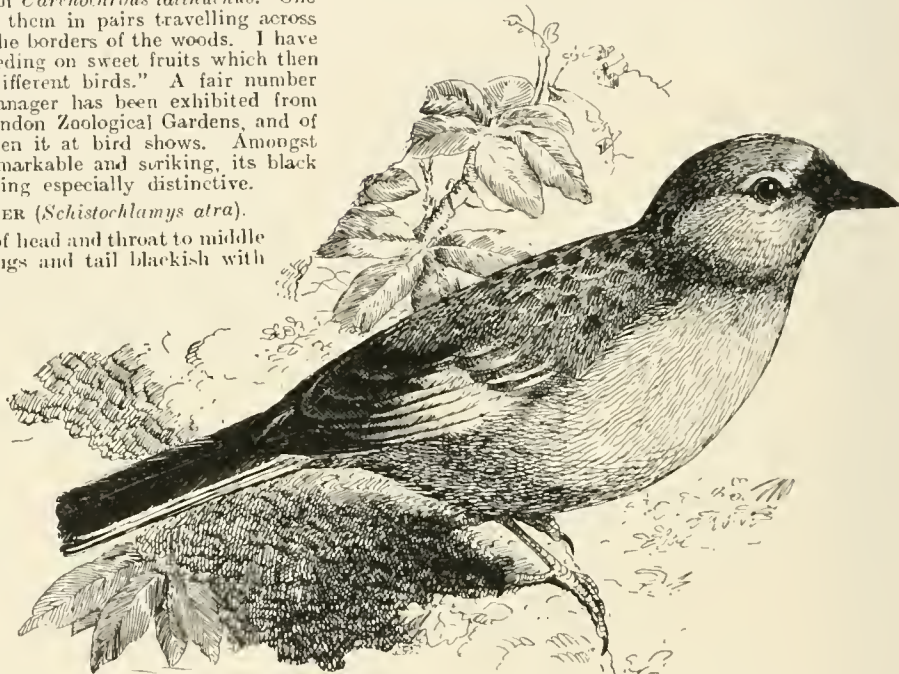
Black, the whole excepting the sides of head, throat, and breast bluish, these parts being more sooty or dead

black; under wing-coverts white; bill orange; feet black. Female not quite so bright, the throat and breast scarcely more intensely black than the rest of the body. Habitat, South Brazil.

According to Russ this bird "is not abundant, and usually lives in pairs, not exactly in deep forest, but more at the borders on bushy and sunny openings," and that is all that I can discover respecting its wild life. It has been exhibited at the London Zoological Gardens.

Before passing on to the true *Fringillidae* it will be as well to note that Professor Robert Ridgway refers some of the preceding genera to that family—viz., *Diucopsis*, *Saltator*, and *Pitylus*. He writes ("Birds of North and Middle America," Vol. I., pp. 24-5) as follows:—

"The group most closely related to the *Fringillidae* is, of course, that called *Tanagridae*, or at least certain



FESTIVE TANAGER. (See page 82.)

members of the latter, which possibly is, even after the above-mentioned eliminations, too comprehensive, and therefore may require still further restriction. As commonly understood and accepted, the two supposed families are clearly purely artificial, and the arbitrary line that has usually been drawn between them is manifestly far out of place, the *Tanagridae* having been made to include forms (those mentioned above*) which are unquestionably Fringilline in their relationships."

His footnote rather detracts from the force of the above observations: I should have thought *Saltator* one of the most palpably Fringilline of the genera placed in the *Tanagridae*; the manner in which it husks and eats seed is essentially Finch-like.

In Vol. II., under the family *Tanagridae*, this author says (p. 1):—"I am very doubtful as to whether the

* The only reasonable doubt pertains to the genera *Pitylus* and *Saltator*.

fruit eating *Euphonia* (genera *Euphonia*, *Pyrrhuloxia*, and *Chlorophonia* should not be separated from the others as a distinct family."

That *Calyptophilus* should be regarded as probably belonging to the *Mimidae* (Mocking-birds), and *Chlorospingus* to the *Minotiltidae* (Bush-creepers) does not at present affect aviculture. It is perhaps as well that I never became a systematic ornithologist, or I am certain I should have broken up the *Tanagridae* more than Professor Ridgway has done. When one compares the heads of *Hypophia* ("Cat. Birds," p. 84) and *Microspingus* (p. 252) of Dr. Sclater's catalogue, it seems to me impossible that both can belong to the same family; but whether they do or not is happily not my business to decide, and so I am content to use the work which the Museum has produced, being only too thankful to have a classification to follow.

CHAPTER IX.

FINCHES (*Fringillidae*).

Prof. Ridgway says ("Birds of North and Middle America," Vol. I., p. 25):—"It is very evident, according to my judgment, that Dr. Sharpe's so-called subfamilies, *Coccothraustinae*, *Fringillinae*, and *Emberizinae*, are unnatural groups, especially the first." It must, however, not be forgotten that Dr. Sharpe himself says:—"Every division of the family is to be accepted on the score of convenience rather than as having a foundation of solid structural characters." In the absence, therefore, of any other subdivision of the family based upon an anatomical study of the whole of the genera of the *Fringillidae*, it simplifies matters to accept the subfamilies proposed by Dr. Sharpe. The three subfamilies, then, will stand as follows:—*Fringillina* (the most typical Finches, of which our Chaffinch is the type, or representative species); *Emberizinae* (Buntings, of which our Yellowhammer is representative); and *Coccothraustinae* (Grosbeaks, represented in Great Britain by the Hawfinch and Greenfinch).

The whole of these birds feed their young from the crop; though the more insectivorous members of the family, such as the Chaffinches, Bramblings, Sparrows, and the Buntings, commence to feed also with undigested insects long before the young leave the nest, a fact which has led even careful observers into error, whilst by some it has even been assumed that these birds were incapable of regurgitating food. More careful study would have convinced them that this is so far from being the truth, that (in all these cases) the regurgitation of soft food is continued, more or less, after the young have left the nest, as I have repeatedly seen.

Of the true Finches (*Fringillinae*) more are now imported every year, several Chaffinches having been introduced into English aviaries and bird-rooms, also not a few of the species known more particularly to bird-catchers and others as Finches, such as Serins, Siskins (sometimes called Goldfinches), as well as Saffronfinches, Rosefinches, Bullfinches, and Sparrows.

So far as possible, I have endeavoured to get together information respecting the species hitherto imported into the European bird-markets, but to follow Dr. Russ's example and describe dozens of birds which have hitherto never been imported would, in my opinion, be exceeding my duty. He often excuses this action by stating that a bird is exceedingly desirable, and

being common in its own country is likely, at some time, to be imported; when that time comes it will be soon enough to regard it as a cage-bird.

Typical Finches (*Fringillinae*).

I place this group first, as not only being more typical of the family, but as enabling one to bring the Cardinals of the subfamilies *Coccothraustinae* and *Emberizinae* into juxtaposition.

Chaffinches should be fed upon seeds, green food and insects.

BLUE CHAFFINCH (*Fringilla teydea*).

Slate blue, the median coverts blackish, tipped with bluish-white; greater coverts similar, but blue externally and less white at the tips. The fourth, fifth, and sixth primaries with a small white spot at base of outer web, uniting to form what is known as a "speculum" when the wing is closed. Tail feathers blackish, edged with blue, the two outer feathers with an ashy patch near the end of the inner web, and a white margin at tip. Eyelids white, under parts pale bluish-grey. The centre of abdomen and under tail coverts white; lower wing-coverts white-edged. Upper mandible horn-brown, whitish at base, lower mandible mostly white. Feet horn-brown; colour of iris not described, probably dark brown.

The female is rather smaller than the male, and has the blue colouring replaced by olive brown.

This rare bird occurs in one pine forest in the island of Teneriffe; examples were imported and bred successfully in an outdoor aviary by Mr. E. G. B. Meade Waldo, who states (*The Avicultural Magazine*, 1st Series, Vol. I., p. 103) that the male sings like our Chaffinch, but the song is more prolonged and has more volume; it is extremely pugnacious and aggressive, never feeds its hen or its young; but, on the contrary, robs the hen of food which she may have obtained for her nestlings. Mr. Meade Waldo gives the other Chaffinches from the Atlantic Islands a similar character; but as regards the Madeiran species I cannot quite endorse his observations.

MADEIRAN CHAFFINCH (*Fringilla madeirensis*).

Above slate coloured in front and yellowish green behind, but with slaty grey tail-coverts; lesser wing-coverts black, grey externally; median coverts white, forming a conspicuous band; remaining wing feathers black; greater coverts tipped with white; quills with yellowish outer edges, primaries greyish towards the tips, the fourth to sixth with a small basal spot of white on the outer webs; central tail-feathers greyish, the rest black, the outer feathers with the outer web white edged towards the base, and a large white patch near the tip of inner web; forehead black; lores, a superciliary streak, the eyelids, side of head, throat, and chest fawn-colour, becoming paler and more pink on the breast and sides of abdomen; flanks slaty-grey, centre of abdomen and under tail-coverts white; upper mandible of beak slate blackish, lower mandible whitish almost to tip; feet whitish horn-grey; iris hazel.

The female is altogether duller and more olivaceous than the male, with all the fawn colour replaced by ashy greyish, the neck and sides of body below washed with brown; the abdomen whiter than in the male. Habitat, Madeira.

The late Mr. Abrahams, acting upon a suggestion of mine in "Foreign Finches in Captivity," imported specimens of this bird about the end of 1895, and kindly gave me a pair. Recording my brief experience of these birds in *The Avicultural Magazine* for June, 1896, I stated that this species was tamer than our

bird, less excitable, but also less inclined to be friendly to its mate. After more than two years' intimate association, I had to modify this opinion, the two birds being apparently on the best of terms with each other.

In the first year of captivity the song of the male bird was inferior to ours, but in the second year vastly superior, being more prolonged and varied. The call note consists of a sharp *chick* like that of our species, but rapidly repeated four or five times.

My birds made but slight attempts at breeding, but if kept in a large outdoor aviary during the summer months they would doubtless do so. Unfortunately I possessed no suitable aviary until some time after my pair had passed away; the cock died on December 12th, 1898, and the hen on January 15th, 1899.

CANARIAN CHAFFINCH (*Fringilla canariensis*).

A subspecies of the Madeiran bird, but with dark slate-blue upper back; the lower back and rump yellowish green; crown glossy blue black without defined frontal band; markings on face and under surface of body pale salmon reddish; breast paler at sides; in the winter the back is washed with olive-yellow. Female less ashy than *F. maderensis*, more fulvous below. Habitat, Canary Islands.

The wild life doubtless resembles that of our European bird.

According to Russ, this species has occasionally been imported singly by Jamrach; it has been exhibited at the London Zoological Gardens.

ALGERIAN CHAFFINCH (*Fringilla spodiogenys*).

"Forehead and lores black; remainder of head, nape, scapulars, and upper tail-coverts slate blue; back and rump green; middle pair of rectrices dark grey fringed with whitish; three outer pairs white, black on the terminal portion of the outer web and on the basal portion of the inner web; next adjoining pair black, with a white patch on the inner web; primary quills black, fringed externally with greenish white; secondaries similar, but more broadly fringed; wing-coverts as in *F. caelebs*; throat and rest of underparts a pale roseate vinous, becoming whitish on the abdomen, crissum, and under tail-coverts. Iris hazel; bill lead-colour; feet brown."

"The female of *F. spodiogenys* may be easily distinguished from that of *F. caelebs* by the far greater amount of white on the wings, particularly on the bases of the secondaries. The general colour of the upper parts is also greyer and less brown than in *F. caelebs*. In size there is also a difference, *F. caelebs* being rather smaller than *F. spodiogenys*." (Whitaker.) Habitat, North-eastern Africa, from Tunis to Morocco (Sharpe).

"In many parts of Northern Tunisia, particularly where there are orchards and olive-groves, this Chaffinch is remarkably plentiful, and by no means shuns the neighbourhood of buildings, although it also frequents the open country far from any human dwellings.

"In its habits generally *F. spodiogenys* resembles our European Chaffinch, and I cannot say that I have noticed much difference in its song, although its notes may perhaps be harsher and not so clear as those of *F. caelebs*.

"This Chaffinch thrives well in confinement, and examples of it may often be seen in cages in Tunis and other towns of the Regency. Seeds of various kinds seem to be the principal food of the species, but insects also enter largely into its diet. The nesting season of *F. spodiogenys* in Southern and Central Tunisia commences soon after the middle of March, and is continued well into May. In the north of the Regency it is somewhat later. In the olive-groves of the Gafsa Oasis I

have found many nests during the first fortnight of April, some with fresh eggs, others with fledglings in them. The nests are placed, as a rule, in the fork of a bough, at a height of from eight to sixteen feet from the ground, and resemble those of our European Chaffinch in being cup-shaped and neatly and compactly built, but they are somewhat larger, and composed externally of dry bents and grasses of a greyish colour, which no doubt harmonises better with the grey boughs and foliage of the olive-tree.

"Interwoven into the nest are pieces of wool and cotton threads, and occasionally also a bit of blue cotton-stuff, probably picked up near some Arab tent; the interior is neatly lined with hair and feathers. The eggs, usually rather larger than those of the common Chaffinch, and generally four in number, are of a dull pale bluish or greenish colour, sparsely clouded and spotted with vinous and russet markings. They vary a good deal in size and shape, but their average measurements are 21.50 by 15.50 mm."—J. I. S. Whitaker, "Birds of Tunisia," Vol. I., pp. 214-217.

This chastely pretty Chaffinch has also been exhibited at the London Zoological Gardens as early as 1864.

The best seeds for Goldfinches and Siskins are canary, German rape, hemp, thistle, teasel, dandelion, and mawseed; the flowering and seeding heads of all the thistle-tribe, of groundsel and dandelion are much appreciated by them, as also green-fly (aphides).

EASTERN GOLDFINCH (*Carduelis caniceps*).

Nearly resembles the European bird, but may at once be distinguished by the absence of black from the head, white from the nape, the smaller crimson blaze and more acute beak; the inner secondaries have broad white outer borders in place of the terminal spots in the European bird. Habitat, "From Lake Baikal to Krasnoyarsk in Siberia. Probably South Persia, and thence eastwards to Turkestan and North-western Himalayas" (Sharpe).

All that Jerdon tells us about this Goldfinch is that "caged specimens are occasionally brought to Calcutta for sale, and its song is said by Adams to be exactly similar to that of its European congener." ("Birds of India," Vol. II., p. 408.) Neither can I discover anything about its wild life in Hume's "Nests and Eggs of Indian Birds," but in *The Ibis* for 1898, p. 28, Mr. J. Davidson says:—"This lovely little bird was fairly common on the hills round Srinugger in April, and on the 29th there we found on the Tukht-i-Suliman a nest half built on the horizontal branch of a *Pinus excelsa* at about ten feet from the ground. This nest we had taken on the 8th May; it was a lovely, very solid cup of moss, with a few roots interwoven on the outside, and contained when taken three pale blue eggs, slightly spotted on the larger end with dull red and lilac."

Dr. Russ says:—"In the course of years I have twice received the species from Gudera of Leipzig," and he adds that they were in bad plumage, so that he could not make an exact description of them; so that evidently they did not live long. He expresses a hope that they may be more freely imported. *C. caniceps* has been exhibited at the London Gardens more than once. In 1897 Mr. Frank Finn sent half a dozen, of which three arrived in safety. I have an idea also that it has been exhibited at the Crystal Palace, but I may be mistaken in this.

AMERICAN SISKIN (*Chrysomitris tristis*).

Lemon yellow; mantle and upper back somewhat sordid; upper tail-coverts white; median wing-coverts black at base; greater coverts black with white tips; other wing-feathers black edged with white towards and at extremities; tail black, the central feathers

with broad white borders, the others with a terminal white spot on inner web; front of crown, lores, and upper edge of eyelid black; edge of wing below black; under wing-coverts, thighs, and under tail-coverts white; axillaries white margined with yellow; bill and feet yellowish brown; irides dark brown. Female altogether duller excepting on the rump, more ruddy brownish in general tint (much like the winter plumage of the male); borders of central tail-feather less white; the black forehead absent, the forehead, lores, and eyebrow being bright yellow; crown olive-yellowish; the under surface is bright yellow, but greenish at the sides; the thighs ashy; under wing-coverts and axillaries also ashy-whitish. Habitat, North America, especially the eastern States.

J. G. Cooper ("Ornithology of California," Vol. I., pp. 167-8) says:—"Their favourite resorts are . . . those places where thistles and other composite flowers abound, and their fondness for the seeds of the former has given them, in places, the name of "thistle-bird." They are also very fond of willow-groves and cotton-woods, feeding much on their seeds, while in winter those of the sycamore (*Platanus*) supply their chief subsistence. In the eastern States they remain throughout the snowy season, and are often seen feeding on cockle-burs and other seeds left standing above the snow.

"In February, when the males acquire their yellow plumage, the flocks often collect on top of a tree, and sing in chorus for an hour, their sweet discord being particularly pleasing, the whole flock sinking and raising their voices in concert, though not keeping one time. Their song, resembling somewhat that of the Canary, is well known, as they are frequently kept in cages.

"At Santa Cruz I found two nests about the first of June. One was in a bush, not more than three feet from the ground; the other on the low branch of a tree, near the end, and contained young. They also build high, in the forks of trees. The nest is very compactly constructed of strips of bark, roots, and fibrous plants mixed with downy scales of leaves and catkins, and lined with thistle-down, that of the sycamore, or sometimes wool or cowhair and fine grass, the cavity measuring 1.50 by 1.30 inches. The outside is often covered with silk of caterpillars' nests, cobwebs, or plant fibres, and seems glued smoothly together. The eggs, from three to five, are pale greenish white, and measure 0.60 by 0.50 inch.

"Being rather late in the year in building, they usually raise but one brood, though they have been known to feed their young as late as the middle of September."

Russ says that he received a pair of this species, but lost both before they acquired their summer plumage. Mr. Boedicker had some later, but sent them away, and Russ did not hear what became of them. He adds that Reiche of Alfeld regularly imports a considerable number in the early summer months, selling them at 84s. a dozen or 10s. a pair; but doubtless this traffic is now put a stop to by the existing laws for the protection of birds in the United States. *C. tristis* has been exhibited at the London Zoological Gardens, and I think also at some of our shows. Mr. Seth-Smith secured a pair in 1898.*

YARRELL'S SISKIN (*Chrysomitris yarrelli*).

Bright yellow, somewhat olivaceous on upper back; median and greater coverts black broadly tipped with yellow; other wing-feathers black, the primaries edged

with yellow and the secondaries with whitish towards the ends; the latter, excepting the innermost, yellow at base; terminal half of tail black; crown, lores, and eyelid black; sides below somewhat greenish. Female browner on the wings and tail than the male, and with no black on the head; in fact, it is altogether more yellow. Habitat, Brazil.

I have no notes on the wild life of this Finch. In *The Ibis* for 1881 Mr. W. A. Forbes says:—"I obtained a living specimen at Parahyba, which is now alive in the Zoological Gardens. I subsequently saw one near Garanhuns, and a pair near some forest close to Quipapá." Also, in *The Ibis* for 1906, Mr. M. J. Nicoll says:—"Several examples of this species were purchased alive in the market-place at Bahia, but they all died."

Russ seems to have overlooked the fact that this Siskin has been exhibited at the London Gardens, but apparently includes it in his book on the ground that Audubon had one in a cage for some time; but, according to Dr. Sharpe, Audubon figures two species as his *Fringilla mexicana*, the present bird being the male, but the female either *S. psaltria* or *S. mexicana*; the question is, which did he keep in a cage?

Many years since I bought two examples of what I believe to have been this bird, from Mr. Abrahams. I had to pay 30s. for the two. They sang splendidly. Unhappily one only lived a week and the other a fortnight, so that I had to pay dearly for the pleasure of hearing the song, which is certainly far superior to that of any other Siskin or Serin that I have heard, with the exception of *Serinus leucopygius*.

INDIAN SISKIN (*Chrysomitris spinoides*).

Crown and cheeks close to the moustachial stripe blackish olive; frontal band, lores, front of cheeks, sides of neck, and rump bright yellow; wings black-brown, the flights narrowly edged with clear grey at the tips and their inner webs broadly bordered at base with yellow; a broad yellow transverse belt; tail black-brown, yellow at base; lower abdomen dull white; remainder of under surface bright yellow; the sides olive-greenish, browner and mottled with white on flanks; bill and feet fleshy grey-brownish; irides brown. Female altogether paler, her back and abdomen streaked with dusky olive. Habitat, "Himalayas from Cashmere to Sikhim, extending into the province of Szechuen in Western China" (Sharpe).

Jerdon ("Birds of India," Vol. II., pp. 409-10) observes:—"This pretty little Siskin is found throughout the Himalayas. It is a somewhat larger and more brightly coloured bird than the European Siskin, and the bill is proportionately much stronger. At Darjeeling it is only a winter visitant, but then by no means rare. It keeps to the woods, occasionally entering gardens in small parties. Adams says that it is common in the wooded districts in the north-west, and that its song is very like that of the English Siskin. Hodgson says it is more common in the central region than in the northern."

Hume ("Nests and Eggs of Indian Birds," Vol. II., pp. 156-7) says:—"The so-called Indian Siskin is not a Siskin at all, and is certainly not a *Chrysomitris*. The note is very like that of a Greenfinch, but structurally our bird is not a *Chloris*; and it seems to me that either one must unite the whole of the true Finches under one genus, *Fringilla*, or one must separate the present species as a distinct genus, and adopt, as I have done, Cabanis's name, *Hypanthis*.

"Although this bird breeds very freely in all well-wooded hills in the interior of the Himalayas, at eleva-

* A coloured plate illustrating both sexes was published in *The Agricultural Magazine*, 1st series, Vol. V., facing p. 125.

tions of from 4,000 to 7,000 feet, I seem to be the only person who has taken the nest in recent times.

"The following is a note that I recorded at a time when I had recently taken several nests:—

"Lays in July and August, at least in the neighbourhood of Simla, where alone I have found its nest. The latter is placed in very various situations, and always so well concealed that, except by watching the birds early in the morning, when both parents are generally feeding in the neighbourhood of the nest, it is almost impossible to discover it. I have found the nest (August 18th), with three young ones, some 30 feet from the ground, nearly at the top of an evergreen oak, and I have found it in a deodar bush not 3 feet from the ground, on the lowest bough, about 6 inches from the main stem. Once I found it against the trunk of an aged deodar, nearly buried in a huge clump of moss, much of which the birds had attached to the sides of the nest. Usually the nests are seated *flat* on some bough or wide-spreading fork, and, as far as my experience goes, this bird prefers the deodar to any other tree. The nest is a most beautiful structure, cup-shaped, woven of the finest grass roots, with a good deal of hair interwoven in the interior and with much moss blended with the exterior. It is a very solid and compact little structure. The cavity, which is generally truly circular, varies from 2 to 2.5 inches in diameter and from 1.1 to 1.4 in depth. Exteriorly the diameter of the real nest does not exceed 4.5, and often falls short of this, but the nest is at times so blended with moss *in situ* that it is difficult to say where the nest ends, and you may have to tear away a patch 9 inches square to get it. The eggs are usually three in number, and when fresh are a delicate, slightly greenish white, with an irregular ring of minute blackish-brown spots round the larger end, and occasionally a very few similar specks on the body of the egg. The shell is exquisitely fine and delicate, and the yolk shows through quite plainly. It is this that gives a certain greenish tinge to the unblown egg, for when blown the shell is a very delicate pale bluish white. In shape they are moderately broad ovals, considerably pointed at one end."

The Indian Siskin has occasionally been imported both by Jamrach and Hagenbeck, and was exhibited at the London Zoological Gardens as early as 1869.

ARKANSAS SISKIN (*Chrysomitris psaltria*).

Above, including sides of head and neck olive-green; the feathers of lower back and rump white at base; lesser wing-coverts black; remaining wing feathers blackish, edged with olive-green; greater coverts tipped with white; inner primaries white at base and with whitish margins; secondaries increasingly white-bordered to the innermost ones; upper tail-coverts black, edged with olive; tail feathers black, edged with whitish; the three outermost with a large white patch on inner web; crown black; lores, feathers below eye, cheeks, and under-surface of body bright yellow, becoming paler on under tail-coverts; sides and flanks greenish, the latter with dusky streaks; under wing-coverts and axillaries white, dusky at base, the latter edged yellow; thighs whitish; wings and tail below blackish; quills white at base and on inner web; beak flesh coloured, greenish below, tipped dusky; feet pale fleshy or reddish-brown; irides brown. Female above and on sides olive-green; wings and tail brown marked with white, as in the male; underparts duller. Habitat, "Western United States, from the plains to the Pacific, and from Colorado and Utah southward to Sonora" (A.O.U. Check List).

According to J. G. Cooper ("Ornithology of Cali-

fornia," Vol. I., p. 169), the habits of this species nearly resemble those of *C. tristis*, but apparently it feeds more on the ground or among weeds than on trees, is perhaps more gregarious, keeping in flocks up to June 1st. The song is similar, but weaker.

Dr. Sharpe has called this the "Rocky Mountain Siskin," but "Arkansas Finch" is the name by which it is generally known in America.

According to what Russ says, this species would appear only to have been once imported by a dealer named Schöbel, who received three specimens, all of which died soon after they came into his possession.

COLOMBIAN SISKIN (*Chrysomitris colombiana*).

Above with the head and body bluish black; nape and mantle with olive-yellowish bases to the feathers; rump with base of feathers white; quills with white terminal fringes; inner secondaries with a white spot at extremity of inner web; other secondaries with much smaller terminal spots; inner primaries white at base, forming a broad speculum; the three outermost feathers also with a large white marking on inner web; sides of head and under parts bright sulphur yellow, slightly paler on abdomen and under tail-coverts; lores, upper edge of eyelid, and ear-coverts black; a black patch on each side of breast; under wing-coverts grey; inner web of outermost tail-feather, and sometimes of the second, white almost to the tip; beak blackish horn-coloured, pale yellowish on lower mandible; feet horn-coloured; irides dark brown. Female above olive-greenish; greenish yellow below, with a greenish olive tint on the throat, breast and flanks; wings and tail dark grey, the feathers margined with paler grey; the wing-speculum only indicated by narrow whitish edges slightly extending over the outer primaries. Habitat, Venezuela, Colombia, Ecuador, and Peru.

Mr. T. K. Salmon says (Proc. Zool. Soc., 1879, p. 508):—"This species builds a pretty nest, often artfully placed on the branch of a fruit-tree. It is composed entirely of dried grass intermixed with moss, cotton and lichen; sometimes the cotton abounds. It is very carefully finished and delicately lined with hair. The eggs are three in number, white, slightly tinged with blue, without any spots. It breeds in June and July, and is a very common bird. The young first assume the plumage of the female, and after the breeding season they are generally seen in flocks of ten or twelve."

Taczanowsky only says of this bird that its habits resemble those of *C. capitalis*, respecting which he gives very little information beyond the fact that it wanders about in companies often consisting of several dozen individuals; is most frequently met with in plantations, but sometimes in the forests of the sierra, and feeds on the seeds of a certain bamboo-like grass of very lofty growth, and that its song is like that of the European Siskin.

Captain Pam brought home two of these birds and presented them to the London Zoological Society in July, 1906.

YELLOW-BELLIED SISKIN (*Chrysomitris xanthogastra*).

Above black; the flights excepting the innermost secondaries yellow at the base, but with black shafts; tail-feathers, excepting the central ones, with the basal half yellow; sides of head and throat black like the crown; thighs and bases of axillaries also black; remainder of under surface yellow, greenish at sides and flanks; the flights blackish, with the inner webs yellow towards the base; soft parts not described. Female above dull olive; median and greater wing-

coverts blackish tipped with olive, whitish at ends; flights and tail-feathers blackish with pale olive fringes; ends of secondaries whitish; lores yellowish as also the front of cheeks; under parts brighter olivaceous yellow, paler on abdomen and under tail-coverts; thighs, under wing-coverts and axillaries ashy, the last-mentioned fringed with yellow; flights below dusky, ashy along inner web. Habitat, Costa Rica to Colombia, Ecuador, and Venezuela.

Mr. T. K. Salmon sent home eggs of this species (see Proc. Zool. Soc., 1879, p. 508). They are described as "pale greenish white, thickly but faintly freckled with lilac and brownish spots; axis 7, diam. .5"; and this would seem to be all that has been recorded respecting the wild life of the present species.

Captain Pam presented a specimen of this Siskin to the London Zoological Gardens in November, 1906.

YELLOW-RUMPED SISKIN (*Chrysomitris uropygialis*).

Entire head and upper surface black, the feathers of the upper parts with yellow margins; flights with a terminal white fringe, best marked on the inner secondaries, which have broad yellow borders towards the ends; remainder of flights yellow at the base; shorter upper tail-coverts yellow, longer ones black with yellow fringe; basal two-thirds of all excepting the central tail-feathers yellow; under surface from throat backwards yellow, greener at sides, the flanks varied with blackish; thighs dusky at base; flights below blackish, yellow towards base of inner webs; beak leaden, feet brown. Female apparently undescribed. Habitat, Chili to South Peru. Russ states that the food of this Siskin consists of oily seeds of plants on the Cordilleras. Its behaviour is shy and cautious, therefore it must be difficult to capture. According to Landbeck it does not long survive its craving for liberty, which, says Russ, is the more to be deplored, in that it would be treasured as an admirable songster; he says also that in spite of its wide range it has hitherto only been received singly and extremely rarely in the bird-trade.

BLACK SISKIN (*Chrysomitris atrata*).

Above dead black: greater wing-coverts tipped with yellow; flights, excepting inner secondaries, yellow at the base; tail-feathers, excepting the central ones, yellow at the base; abdomen and under tail-coverts yellow; thighs pale yellow; under wing-coverts, axillaries and base of flights below yellow. Female or young browner than male; yellow paler; the median wing-coverts tipped, like the greater coverts, with yellow; the flights with yellowish white margins towards the end of outer web; under surface yellow from the throat backwards; the breasts mottled with brown. "Mendoza to Bolivia and Peru" (Sharpe).

Taczanowski ("Orn. Pérou," Vol. III., p. 53) says:—"The nest is composed of an irregular bed of moss mixed with a little wool, some stems of dry grass, rootlets, and little twigs, upon which the true nest is constructed of wool and different kinds of hair, rarely also including a few feathers. All this structure is thick and very compact; interior shallow, but carefully moulded. Height, 4.5; width, .13; diameter of interior, 4.5; depth, 2.5 centimètres. All found by M. Jelski under the straw-covered roofs."

"The eggs are greenish white, variously spotted, even among specimens of the same clutch. Eggs found on the 30th April differ from one another in this respect: one has at the large end a zone formed of little reddish spots, very pale and indistinct and some other darker ones scattered over the rest of the surface; another has a similar zone nearer to the large end and fewer but larger dark spots on the zone and none on the rest of

the surface; on the third the zone is reduced to some small spots, some dark dots and some nearly black tangled veining, one of which extends over nearly half the length of the egg; an egg of the second clutch, on the other hand, has a broad zone near the small end formed of dark spots and dots, and little speckling on the remainder of the surface, the large end is almost unspotted. Dimensions:—18.6 × 19.6 to 13 × 13.6 millimètres."

Mr. Ambrose A. Lane, writing on the birds of Chili (*The Ibis*, 1897, pp. 22-23) says:—"I first saw these birds at Huasco, in Tarapaca, in January, 1890, and subsequently at Sacaya."

"They did not appear to be stationary for any length of time, but frequented stretches of the low bush in large scattered flocks, and I saw none after February, and concluded they had migrated."

"The only note I observed them utter was an insignificant twitter when flitting from bush to bush. I did not see any at altitudes above 10,500 feet."

According to Russ, this bird is caught and caged by the Indians on account of its admirable song, and he expresses the hope that it may eventually be freely imported into Europe. Hitherto he says he knows of only one male having been received by Mr. E. Linz, of Hamburg.

BLACK-CHINNED SISKIN (*Chrysomitris barbata*).

Above yellowish-green, becoming more yellow on lower back and rump; mantle and upper back with blackish centres to the feathers; median and greater coverts yellow, the latter black at base; flights black, more or less edged with yellow, the bases yellow, confined to the outer web in the primaries, and forming a broad belt; upper tail-coverts greenish yellow edged with ashy grey; tail blackish, yellow at base, the inner webs of the feathers edged with whitish, the outer webs with ashy excepting at base; crown black, the feathers with slight olive margins; sides of head and neck greenish yellow; lores whitish; cheeks and under surface bright yellow; sides greenish; centre of throat black; abdomen white; flanks ashy; thighs yellowish ash-coloured; longer under tail-coverts ashy with black centres, the remainder yellow; under wing-coverts and axillaries yellow with dusky bases; flights dusky, yellow towards base of inner webs. Female altogether duller, with less defined markings on wing, no black on crown, a pale yellow forehead joining a long yellow eyebrow stripe running into the same colour at side of neck; ear-coverts dull olive; cheeks and under surface pale yellow with an ashy tinge; abdomen white; sides olive-yellow; lower flanks brownish. Habitat, "Falkland Islands, Patagonia, and Chili" (Sharpe).

Mr. Lane (*The Ibis*, 1897, pp. 21-22) says:—"This species is one of the most popular and familiar small birds throughout Chili. It is very numerous in the southern provinces, and from its beauty, docility, and singing capacities is kept by many people as a cage-bird. It is known everywhere as the 'Jilquero,' pronounced 'Silquero' in the southern provinces."

"These birds closely resemble the common Siskin in general appearance and colouring, as also in habits. I did not observe them in the central provinces, but was told they occur as winter visitants. I found them very numerous in Arauco, and also about Valdivia; but south of the latter district I did not observe so many, though a certain number occurred as far south as I went, and in Chiloe. They bred at Rio Bueno about November, somewhat earlier than other small species there."

"I was not fortunate in getting any eggs of this bird, but found a new nest, which was placed in a thick

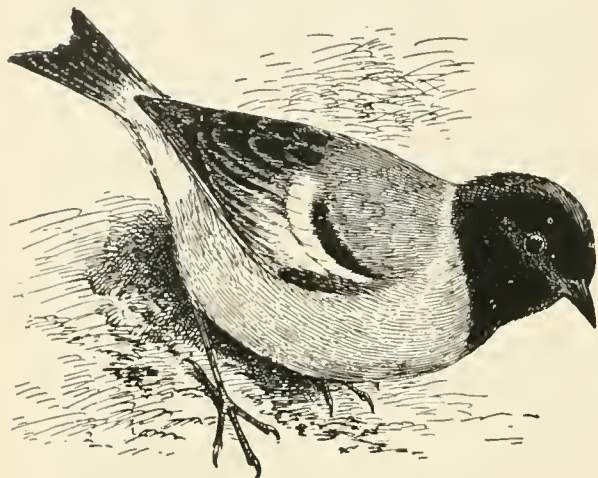
shrub on the margin of the forest about three feet above the ground.

"A boy brought me a young one in full feather; it was somewhat like a female, but less distinctly marked.

"These birds are easily captured at certain seasons by means of trap-cages. I had specimens alive at various times, but they usually escaped or got injured, so I had none to bring home.

"In winter-time in Arauco I frequently saw them feeding on the topmost twigs of low forest trees, just like a flock of Siskins do here on the alder. They commence to sing at Maqucoqua (Arauco) about the beginning of August, and sing a good deal through the summer. Their song is very pleasing and much esteemed. Their call-note is the double whistle of the Siskin. They prefer wooded districts, are not found in very open localities, and appear capable of finding subsistence in the forest for a large portion of the year, if not altogether."

This species has been exhibited at the London Gardens in 1875, 1886, and 1890, but Russ does not include it in



BLACK-HEADED SISKIN.

his work under the name of *C. barbata*, but has resurrected for it the name of *C. marginalis*.

BLACK-HEADED SISKIN (*Chrysomitris icterica*).

Above pale olive-green; wings black, with the exception of the lesser coverts; a broad yellow belt across the base of the flights; rump yellow; upper tail-coverts olive-green; tail yellow at the base and black at the extremity; entire head, including throat, black; under surface bright yellow. Female duller and without black on head. Habitat, Brazil and Argentine Republic to Chili.

In its wild state this species is more commonly met with in inhabited districts than in woods, being especially fond of poplar groves, and usually building its nest in a poplar; its favourite seeds are those of the sow-thistle and lettuce, on which plants it may usually be seen when their seeds are ripening.

Like our Siskin, this species is extremely restless, and travels in small companies, usually consisting of about a dozen individuals. The nest is generally placed on a small branch, at its junction with the trunk of the tree, and is firmly and neatly built, with a lining of hair, down, or feathers. The eggs are five in number, thin-shelled, and pure white.

The song is very sweet, and certainly superior to that of the European bird. Unfortunately, it rarely arrives in this country in good condition, so that many specimens die before they have been long in captivity; they are also never very cheap. I imported a specimen in 1893, but it arrived in such ill-health that it only lived three days after it reached me.

Mr. A. H. Holland (*The Ibis*, 1892, p. 197) says:—"Very common throughout the year, and in flocks immediately after nesting. Has a melodious twitter. Breeds late in November, and is easily tamed."

Mr. O. V. Aplin, writing on the birds of Uruguay (*The Ibis*, 1894, pp. 170-171), says:—"Common, especially about the quintas of estancia houses, and resident to a certain extent, but possibly not entirely so; they certainly become much less common in the autumn. They are fond of feeding on the seeds of different tall plants, and I have seen them clinging to a yellow-flowered composite, and especially to a blue-and-red-flowered Boraginaceous plant called *flor morada*, just as we see Goldfinches clinging to thistles in England. The song is very like that of the English Siskin (speaking only from a knowledge of the song of the latter as a caged bird), but rather more powerful, and reminding one sometimes of the Goldfinch's. This is quite one of the best song-birds of the country, and the song always seemed to carry one back to the Old World. Building was in full swing in November. On the 15th I knew of three nests in construction, and one finished. Three of these were in young poplars, the fourth in a *Pinus insignis*, the former in the first fork of the branches, 8 or 9 feet from the ground. They were formed of grass, wool, lichen, etc., and lined with hair. The next day the house-peon showed me a quite inaccessible nest, some 10 or 12 feet up a big organ cactus (or *tuna*) near the kitchen. Siskins were in song at the end of January. The local name is 'Sigéro.'

According to Russ, this bird is extremely rarely imported, but in England I have seen it several times. It has been exhibited at the London Gardens. Dr. Russ describes *Chrysomitris laurencii*, but I cannot find that it has ever reached the European market.

HOODED SISKIN (*Chrysomitris cucullata*).

Above vermilion, brighter on the lower back, rump, and upper tail-coverts; the head black; wing-coverts vermilion, black at base, the greater coverts so broadly that only the tips retain the red colouring; other wing-feathers black, the flights, excepting the inner secondaries, red at base, but with black shafts; the inner secondaries with the extremities of the outer webs edged with whitish or reddish; tail black; pale vermilion at base; throat black; sides of neck and underparts chiefly vermilion, but the abdomen and thighs white; under tail-coverts white-tipped; under wing-coverts and axillaries ashy at base; flights black, pale vermilion at base. Female altogether greyer, not black; the back slightly washed with vermilion in front, the lower back, rump, and upper tail-coverts bright vermilion; the red on the wings more orange in tint; the leres and chin whitish; sides of face and throat ashy grey; breast orange-vermilion; abdomen, thighs, and under tail-coverts white; sides and flanks brownish ashy; under wing-coverts and axillaries whitish, the lower ones reddish at base. Habitat, "Venezuela and Trinidad. Introduced into Cuba and Porto Rico." (Sharpe.)

I can discover no published notes on the wild life of this beautiful Siskin; but happily, although a rarely imported bird, and particularly in the English market, Mr. Heer of Striegau and later Dr. Russ succeeded

in breeding it successfully in their bird-rooms. Dr. Russ says that it was first imported by Karl Hagenbeck under the name of "Little Cardinal," and subsequently single specimens or pairs reached Chr. Hagenbeck, Jämrach, Bekemans, and others.

Mr. Heer thus describes his success in breeding the species:—"The female only laid two eggs,* but hatched out both, and both had already successfully left the nest when one which was already recognisable as a male lost its life by an unfortunate accident. The other youngster, a female, is flying strongly about the bird-room, and is almost as large and vigorous as the old birds. The Black-headed Siskins (German name, but already applicable to another species) had driven a pair of Zebra-finches out of their nest-box, upon the nest of which, containing five eggs, they built a new one, and then hatched their two young. I discovered this on examination of the nest after the young had flown.

"The pair lived, in like manner to their allies, the whole year through in a palpably conjugal relationship, so that the pair, though not appearing to trouble much about one another, yet always remained near together. At the approach of the nesting season, in July in my bird-room, the male began to show great affection, as he fed the female from the crop, and always followed her closely. The latter collected threads and stalks into an open nest-box . . . and formed a flat cavity, chiefly of wadding, linen threads, and cowhair. The clutch consisted once of three and the second time of four eggs. In the first brood, however, she only brought up two young, and in the second only one. These broods must be the only ones, up to the present time, which have been recorded, as the bird so far occurs in few collections."

And what a poor record it is! The eggs are not described, the duration of incubation is not indicated, the nestling plumage is not noticed.†

Mr. Astley has published an amusing account of the Hooded Siskin, illustrated by a coloured drawing, in *The Aricultural Magazine*, 2nd series, Vol. I., pp. 47-51.

In 1906 Captain Pam and others brought home five examples of this species, two of which were presented to the London Zoological Gardens and the others deposited there. If London dealers would take the trouble, doubtless they could secure plenty of specimens. In 1877 Miss Hagenbeck is said to have exhibited several pairs at a breeders' society in Hamburg.

PINE SISKIN (*Chrysomitris pinus*).

Above brownish olive; every feather with blackish centre; median coverts, blackish brown tipped with white, greater coverts with yellowish-white; flights and tail-feathers blackish-brown, more or less yellow at base and with the outer edges yellowish-green and their inner edges yellow; ear-coverts brown; remainder of sides of head and under surface whitish with dusky streaks, excepting on centre of abdomen and thighs; under wing-coverts and axillaries yellowish white; flights below dusky, edged with yellowish, brighter yellow towards base; beak, feet, and irides brown. Female similar, but yellower and less strongly streaked on the under parts. Habitat, North America, wintering in Mexico.

J. G. Cooner ("Orn. Calif.," Vol. I., p. 172) says:—"They are found both among the coniferous trees and those that are deciduous, feeding on the seeds of

spruces, alders, willows, and juniper-berries." Gentry states that the wild life corresponds with that of other Siskins, including the European species, but its flight and actions more nearly resemble those of the Purple Rose-finch. The call-note is a sharp penetrating swarr or zirr, which it utters during flight.

Audubon says that the song is soft, varied, and melodious, and to some extent resembles that of the American Siskin. Its food consists of the seeds of grasses and other plants, and in the autumn of juniper berries, coniferous and other seeds, and in spring, especially when hatching, of plant-lice and other insects, also all kinds of tree-buds and shoots of conifers.

According to Brewer, the breeding season is in May; the nest is formed of fibres, rootlets, stalks, and grasses, and neatly lined inside with hairs and wool. The clutch consists of four longish-oval eggs of a pale green colour, marked especially at the large end with bright rust-colour.

Russ received a single specimen of this Siskin from Möller, of Hamburg, in 1877, but it has always been rare in the trade. In 1907 the London Zoological Society received four examples as part of an exchange with the New York Zoological Park.

TOTTA OR SOUTH AFRICAN SISKIN (*Chrysomitris totta*).

Above chocolate, the back with indications of darker centres to the feathers; rump olive-yellow; upper tail-coverts brown, with darker centres and whitish edges; tail black tipped with white; wing-coverts chocolate; flights brown, externally black, with a subterminal black marking and white tips; crown olive-yellow; lores grey; sides of face and ear-coverts grey with an olive tinge; cheeks olive-yellow with brown streaks; under surface olive-yellow; the throat sometimes with a few dusky spots; sides, flanks, and thighs washed with brownish; axillaries and under wing-coverts greyish-yellow; beak pale brown, feet and irides brown. Female generally browner and less yellow, the crown chocolate streaked with blackish; throat and upper breast greyish brown with a yellowish wash and dusky spots. Habitat, Cape Colony.

Messrs. Stark and Sclater ("Birds of South Africa," Vol. I., p. 182) give the following account of the habits of this Siskin:—"Although by Dr. Sharpe separated from the Canaries (*Serinus*), and placed with the Siskins (*Chrysomitris*), this little bird resembles the former in its habits, and when kept in confinement readily interbreeds with the Cape Canary (*S. canicollis*). The song, although of a certain merit, does not equal that of the Cape Canary in tone or quality.

"It is of somewhat local distribution, abundant in certain localities and quite absent from others apparently equally well adapted to its habits. It may be often met with on bush-covered hillsides, and appears to prefer hilly to more level ground. It feeds on small seeds, buds of trees, and insects. The nest is placed in a bush from two to four feet above the ground, and is built of grass-stems, small rootlets, and pliant twigs, lined with down and occasionally a few hairs. The eggs are four or five in number, pale bluish-green sparingly spotted and sometimes zoned with reddish-brown of two shades. They average 0.72 by 0.54."

Of late years this has not been an especially rare bird in the trade, and a fair number of specimens have appeared at our shows; I have not been tempted to purchase it myself, but have had it sent to me in the flesh for identification. In appearance I consider it one of the least attractive of the Siskins.

DESERT TRUMPETER BULLFINCH (*Erythropsiza githaginea*).

The upper parts of the male mostly ashy brown, with narrow rosy edges to the feathers, but the rump and

* Subsequently we discover that she laid three, but only hatched two.

† Dr. Russ, however, gives the following description of the egg:—"Shape oval; colour delicate bluish or greenish white, finely dotted with red-brown. Length 14 mm., breadth 11 mm."

upper tail-coverts rose-coloured; the primary coverts minutely tipped with white; under parts mostly rosy, but the cheeks, throat, and flanks more or less ashy-brownish; beak coral red, feet orange, iris brown. The female is similar, but duller throughout. In the winter plumage both sexes are altogether more sandy and less rosy in tint, and the beak is paler. Habitat, from the south of the Mediterranean eastwards through Persia and Baluchistan, into Western India.

According to Von Heuglin, the breeding season of this little bird commences even as early as March, but certainly in April or the beginning of May. The nest is usually placed in a crevice or cranny in rock or wall, and, according to Mr. Meade-Waldo, is slightly constructed of dry weeds and lined with goat's or camel's hair. The eggs, five or six in number, are pale blue, lightly spotted with dark purple. Von Heuglin describes the young as "greyish earth-brown, below clearer." He also says that in June they unite with the adult birds into little companies, which wander about in desultory fashion on fallows, roads, villages, stone bridges, cliffs, ruins, rocky islands, and on the margin of the desert, feeding chiefly on seeds of grasses. The call-note is described as a wooden "ter-ter" by Von Heuglin, and a metallic "twang-twang" by Meade-Waldo, and the song insignificant, often chattering, or rather chirping, but always intermingled with sounds which resemble those produced by a child's toy trumpet.

J. L. S. Whitaker, in his "Birds of Tunisia," Vol. I., p. 221, says:—"Eminently a rock-frequenting bird, the Desert Bullfinch is, as a rule, only to be found in hilly, stony districts, and never apparently in the true sandy desert. Its plumage, like that of many of the Larks and other birds, harmonises admirably in colour with the warm reddish tints of the southern rocks and soil, and affords a good example of Nature's protective colouring. The exquisite rose hue of this little bird's plumage, however, is unfortunately, somewhat evanescent, and fades considerably after death.

"During the greater part of the year *E. githaginea* is to be found in small parties, but during the breeding season single pairs are more often met with. It is by no means a shy bird, and will often allow one to approach within a few yards of it before taking to flight. Its food consists chiefly of the seeds of wild plants, but also to a certain extent of insects and grubs. In captivity the species thrives well, and examples of it may occasionally be seen in aviaries."

"The nest of this species is usually placed under a tussock of grass or other small plant on a hill-side, and is neatly built of fine bents, lined with a little hair or wool. The eggs, usually four or five in number—though I have found as many as six—are elongate in shape and of a delicate sea green colour, slightly spotted and streaked at the larger end with dark lake and reddish-brown. Average measurements, 20 by 14 mm."

Mr. Meade-Waldo in 1897 bred three nests of six and one of four from a single pair, the male of which was about ten years of age. He says that the young are fed entirely on seed disgorged from the crop, no soft food being touched. Canary, spray millet, and shepherd's purse are the favourite food of the species.

I have seen a good many specimens of this species, both at bird shows and in private aviaries, but I never possessed it myself.

ROCK-SPARROW (*Petronia petronia*).

Above sandy brown, with darker streaks and spots; back and wings dark brown with pale buff margins to the feathers; tail dark brown, the feathers increasingly tipped with white on the inner webs from the

central feathers outwards, below pale buff indistinctly streaked with brown, more strongly on the flanks; a yellow patch on the throat; bill brown, paler below; feet pale brown; irides brown.

The female is similar, but with less defined yellow patch on the throat. Habitat, Europe southward to N. Africa, Madeira, and the Canary Islands; eastward to Central Asia, Eastern Siberia, and North China.

J. I. S. Whitaker ("Birds of Tunisia," Vol. 1, pp. 211, 212) says:—"As the name would imply, *P. petronia* is a rock-loving bird, being generally found, either in small parties or in pairs, on hill-sides or in the vicinity of rocky ground. Occasionally, however, it is to be found on cultivated land, consorting with Skylarks, and I once shot one out of a flock of Larks in the middle of a cornfield. The food of the Rock-Sparrow consists chiefly of grain and various kinds of seeds, but it is varied to a considerable extent by an insect diet. The note of this bird is a harsh and monotonous chirp.

"The Rock-Sparrow breeds as a rule in holes in cliffs or old walls, and the nest is composed of straw or dry grasses, with a little wool, plentifully lined with feathers and hair. The eggs, four or five in number, greatly resemble those of the common House-Sparrow."

Dr. Russ mentions three or four European dealers who have at various times offered this species for sale, but he says it is rarely received, but several aviculturists state that it is a noteworthy songster. With captive birds one is far more likely to hear the true song than the field naturalist; therefore it is quite likely that Mr. Whitaker never was fortunate enough to come across a singing male, and only heard the chattering and chirping in which Sparrows far more frequently indulge.

YELLOW-THROATED ROCK-SPARROW (*Petronia flavicollis*).

Above ashy-brown; lesser wing-coverts bright chestnut; median coverts tipped with white, forming a bar; greater coverts narrowly tipped with whitish, forming a second narrower bar; flights and tail feathers dark brown with pale brown edges; outer tail-feathers with tips of inner web fringed with whitish; an ill-defined pale eyebrow-streak; lores and eyelids dusky, as also the upper portion of the ear-coverts; chin and fore-throat whitish followed by a yellow spot on the hinder throat; remainder of underparts pale greyish brown, becoming white on vent and under tail-coverts; beak black; feet ashy-brown; irides brown. Female with the chestnut of lesser coverts and the yellow throat-spot paler than in the male. Habitat, Persia and Baluchistan to Sind and the plains of India, ascending the Himalayas west of the Beas up to 4,000 to 5,000 feet.

Jerdon ("Birds of India," Vol. II., pp. 368, 369) says:—"It frequents thin forest jungle; also groves of trees, avenues, and gardens, in the better wooded parts of the country. It lives in small parties, occasionally, during the cold weather, congregating in very large flocks; feeds on various seeds, grains, and flower-buds, and has much the same manners and habits as the common House-Sparrow. It has also a very similar note. It breeds in holes in trees, and in some parts of the country in the roofs of houses, in the hollow bamboos of the roof, and, occasionally, in pots hung out for the purpose. The eggs are three or four, greenish white, much streaked and blotched with purplish-brown."

Hume ("Nests and Eggs," 2nd ed., Vol. II., pp. 157-159) says:—"I have taken scores of nests of this species; all were, without exception, placed in holes in trees. Old mango-trees, for instance, are very often

chosen, and in these the nests may be found at 30 feet from the ground, though usually they are at heights of from 12 to 20 feet; sometimes some old stub is patronised, and then the nest may not be a couple of feet from the ground. On one occasion I found a nest in a hole in the stem of an old leucis bush (*Capparis aphulla*), which stem was barely 5 inches in diameter.

"The nest is generally only a little bundle of dry grass, thickly lined with feathers. If in a mangrove grove much frequented by the Common Green Paroquets, the feathers of these latter are sure to be those chiefly used. Sometimes, however, a more or less cup-shaped nest is formed, fine strips of bark and tow being added to the grass; and, again, at times it is a regular pad of hair, tow, and wool, with a few feathers, all closely interwoven, and with only a little central hollow.

"I never found more than four eggs, often only three fully incubated ones, but more may occur.

"The eggs are dull and glossless, moderately elongated ovals, sometimes pointed towards the little end, sometimes blunt and pyriform. Considering how nearly equal in size the two birds are, it is surprising to find that the eggs of this species average in weight little more than half those of *P. domesticus*. The ground-colour, where any of it is visible, is greenish white. The eggs are very thickly streaked, smudged, and blotched all over with dingy brown, usually more nearly a mixture of sepia and chocolate-brown than any other shade I can think of. In some eggs the markings are entirely confluent all over, so as to leave no particle of the ground-colour visible, and in all the eggs I have seen they were so thick as to leave but little of this visible. The very dark dingy appearance of these eggs is their chief characteristic.

"The eggs vary less in size than those of the House and Tree Sparrows, and are considerably smaller than either. In length they vary from 0.66 to 0.78, and in breadth from 0.52 to 0.56, but the average of thirty-four eggs is 0.74 by 0.55 nearly."

Dr. Russ states that this species has never been imported alive into the European market; but in 1895 Mr. Frank Finn presented an example to the London Zoological Gardens, and it seems likely that the late Mr. Abrahams was acquainted with the bird from the fact that he recognised two allied forms in my possession as sexes of the Yellow-throated Sparrow. It is very unlikely that so common an Indian bird would fail to be sometimes imported in batches of birds from Calcutta.

LESSER ROCK-SPARROW (*Petronia dentata*).

Above, generally ruddy mouse-brown, the median and greater wing-coverts with slightly paler edges; flights and tail-feathers much darker, but with pale edges; crown normally dark grey (sometimes dark brown at back and with a broad white frontal band); lores whitish; a broad reddish clay-brown eyebrow-streak; chin, upper half of throat, breast, and under tail-coverts white, shading into pale brown on the sides of the head and throat (sometimes the white runs over on to the front of the face and is limited to the centre of the throat in continuance of the usual pale sulphur patch on the front of the breast); abdomen white, faintly washed at the sides with brown; under wing-coverts and axillaries ashy-brown; beak dark horn brown, flesh-coloured towards base of lower mandible; feet dusky flesh-coloured; irides reddish-brown. Female, according to Von Heuglin, more fulvous, with cheeks, breast, and flanks washed with fulvous, etc., etc.; but he was probably describing *P. albigularis*, which is neither the female nor the

young of *P. dentata*, as has been supposed. Habitat, N.E. Africa.

Von Heuglin says that this species is found in pairs or small flocks along the openings in the woodlands or perched on the bushes in the deserts, generally near water, and that the note resembles that of our House Sparrow*; his assertion that the eggs, which he found in a Weaver-bird's nest, where white was based upon faulty observation, the eggs which he found having doubtless been laid by the Weaver, certainly not by the Sparrow.

In 1898 two examples of *Petronia* were sent to me by an unknown friend, which were (incorrectly) pronounced by Mr. Abrahams to be sexes of the murderous Yellow-throated Sparrow. As I have already recorded (*The Avicultural Magazine*, N.S., Vol. 1, pp. 294-298), I turned this supposed pair into a flight-cage in the corner of which a prepared Hartz-cage was hung up, and provided them with nesting-materials and cuttle-bone. They built a very neat nest, externally formed of hay, internally lined with feathers and wool; and, so far as I could judge, since the eggs were hardly ever laid in the nest, but mostly dropped from a perch, the clutch appeared to consist of from five to six eggs; as, however, I discovered towards the end of their lives that both birds were laying, it is quite possible that three or four may represent the laying of each individual.

I had no sooner discovered that my supposed pair consisted of two adult hens than both became egg-bound, and *P. dentata* (the supposed cock-bird) died before it could be treated; I pressed out the egg and discovered it to be exactly of the usual type. The other hen (*P. albigularis*) recovered for a time, but 1903 saw the end of both of them.

Of the eggs, which were unknown to science, I only succeeded in saving two, one of which I sent to the Natural History Museum. I described them (*The Avicultural Magazine*, l.c.) as follows:—"The ground of the egg is greenish-white, more or less thickly dotted with dark brown; the larger extremity is always sooty-blackish, exactly as if it had been held in the smoke of a lamp until well blackened; the extent of the dull black patch varies somewhat, but I have not seen one egg without it among the many which my birds have broken. In shape they are broad ovals, resembling, both in outline and general size, those of the Greater Whitethroat."

Dr. Russ says:—"This bird is not rare in the trade, but is only imported a few at a time." The remainder of his remarks are chiefly abusive; indeed, he gives the poor Sparrow a very bad character. Undoubtedly my two hens, which were at least representatives of different races, if not species, often quarrelled rather viciously.

WHITE-THROATED ROCK-SPARROW (*Petronia albigularis*).

Very similar to *P. dentata*, but the crown, back, and sides of neck uniform brown; eyebrow streak sandy buff; mantle streaked with blackish; median and greater wing-coverts with pale tips; flights with broad sandy-brownish borders to the inner webs; the yellow throat spot ill defined, more diffused than in *P. dentata*; abdomen less white. Habitat, N.E. Africa.

This Sparrow was long believed to be the young of *P. dentata*, and it is still so regarded in Captain Shelley's "Birds of Africa," Vol. III., p. 262; but the fact that I kept the two together for five years, that the supposed young plumage never changed, and that

* It is, however, decidedly sharper in sound.—A. G. B.

both laid many eggs, clearly proves that both were adult, and therefore presumably at least distinct sub-species.

The egg of *P. albicularis* is indistinguishable from that of *P. dentata*.

SOUTHERN ROCK-SPARROW (*Petronia petronella*).

Above brown; the crown darker; mantle mottled with blackish; wings dark brown, the feathers with paler borders, median and greater coverts with whitish tips, forming two wing-bands; borders of flights rufescent; tail-feathers dark brown with ill-defined whitish edges; below pale brown; a broad whitish eyebrow-stripe; space between the latter and ear-coverts dark brown; chin, upper throat, centre of breast, and under tail-coverts white; a yellow patch at back of throat; flights below brown with pale inner edges; under wing-coverts pale brown, partly mottled with white; beak dusky horn-brown, with pale lower mandible; feet brownish ash; irides brown. Female smaller and with smaller yellow throat-spot. Habitat, Africa, to the south of about 3 deg. S. lat. (Shelley.)

In Stark and Selater's "Birds of South Africa," Vol. I., p. 158, we read:—"Although this Sparrow may be sometimes seen hopping about rocks, it is more frequently to be met with among trees, and especially euphorbias, from the bark of which it appears to glean a considerable amount of food in the shape of small beetles and other insects. Mr. T. Ayres writes regarding its habits in Mashonaland: 'These Sparrows are not uncommon about the Umvuli, frequenting the high trees and feeding much as the Tomtits do, hanging about the outer twigs and eating the young buds, etc.; as, however, food of all kinds is scarce for birds, this may not be a usual habit. They are now mostly in pairs, and their loud Sparrow-like cries, often repeated in the early morning, attract one's attention to them.'

"This species appears to feed very largely on insects, which it finds in crevices of rocks and in the bark of trees. It also eats small seeds of grass and various weeds. It builds a large Sparrow-like nest of dry grass and feathers in the hole of a tree or rock, and lays three or four eggs, which resemble those of the Cape Sparrow, but they are slightly larger, as a rule, and more sparingly but distinctly spotted with dark slaty-brown."

On the other hand, Captain Shelley says:—"Mr. Ivy, a resident at Grahamstown, writes: 'I have found many nests of this species in the decayed centres of the branches of the euphorbia trees. The bird makes a small opening in the bark, and on a deposit of a few feathers and down in the hollow of the branch, lays from three to four dull brown unspotted eggs. It breeds in companies, and the eggs are difficult to obtain, as the branches of the euphorbias are high up above the ground, and though heavy are brittle and rotten.' He further remarks that the eggs are very unlike those of *Passer arcuatus*."—"Birds of Africa," Vol. III., pp. 266, 267.

Captain Shelley has resurrected the name *flavigula* for this species on the ground that Bonaparte quoted Sundival's name while giving it a different one. This is not always a conclusive proof of priority, for I have had proof-sheets of a book forwarded to me when I was bringing out a work (to enable me to quote from them), and I rather think my book was published first. Although this species has been represented several times at the London Zoological Gardens, Dr. Russ omits it from his large work.

CAPE SPARROW (*Passer arcuatus*).

Above deep bright cinnamon; the nape and mantle greyish; upper tail-coverts brown; lesser wing-coverts cinnamon; middle and greater coverts black, tipped with white, the latter with brown edges; tail black,

with reddish margins to the feathers; head black; a broad eyebrow stripe, sides of neck and back of cheeks white; throat and front of breast black, remainder of under surface white, greyish at the sides and on the thighs; flights below dusky with the inner margins greyish fulvous; beak black; feet brown; irides brown. Female smaller and duller than male, browner above, the crown being duller black, the mantle and upper back brown; a pale buff streak bordering the back of crown and a buffish patch behind the cheeks; sides of head, throat, and front of breast dusky brown; remainder of under parts pale buff. Habitat, "South Africa, eastwards to the Transvaal, and westwards to Benguela." (Sharpe.)

Layard ("Birds of South Africa," p. 479 of Sharpe's edition) says:—"The 'Messie,' like its cousin, the English bird, is essentially a 'cit.' In the country you certainly find him, but never away from human habitations. He seems to think man only builds houses for him to dwell in; only grows corn for him to eat; only plants trees for him to roost in. The airs he gives himself are amusing, and you feel inclined to forgive his speculations out of sheer admiration for the boldness with which he executes the theft. With the earliest dawn he is up and doing, and his chirrup arouses you from your slumbers; but, as he has not got to dress, and you have, he is off to visit your farm produce before you are. As he has wings, he visits all your property (not to count your neighbours), and levies toll where he likes; and you find him in the evening, when you reach home, tired and footsore, there before you, and with unabated vigour fighting for the snugest and warmest berth under the eaves, or the cosiest branch upon your pet oak-tree. Well, don't be hard on him. He will in his season rid you of thousands of caterpillars and grubs; and if your "eldest hope" is old enough to begin to shoot, he will do no great harm in thinning their numbers in the autumn, and manufacturing puddings for his brothers and sisters with the bodies of the slain. Sparrows build in holes in walls, or in trees, indiscriminately. If they select the former, they accumulate a lot of sticks as a groundwork, and fill up with straw and feathers. Their eggs, three to five in number, are light verditer with brown blotches, but they vary much in shape and colour."

Messrs. Stark and Selater ("Birds of South Africa," Vol. I., pp. 161-162) say:—"This Sparrow is still to be found living a perfectly wild life, at a great distance from human habitations, in many parts of Little Namaqualand and the great Karroo desert. Here it affects the neighbourhood of mimosa trees, and appears to flourish in the most dreary and waterless districts, feeding on small seeds and insects and building its nest in some thorny bush or tree. It seems probable that this Sparrow was originally a desert bird, and has comparatively recently changed its habits in certain districts and adapted itself to a town or village life. In autumn and winter these Sparrows are frequently found in considerable flocks, often consorting with other Finches and Weaver-birds. Even when nesting they frequently form social communities and build many nests in the same bush or tree; occasionally I have seen a bush so packed with nests that they formed a solid mass, much like one of the collective nests of a Social Weaver-bird."

"The nest, a domed structure, is more or less flask-shaped, with an entrance from a few inches to more than a foot in length, through a horizontal projecting neck. It is constructed of small sticks, straws, dry grass, occasionally interwoven with rags and bits of paper, the cavity being warmly lined with wool and feathers. Two or three broods are raised in the year, the first eggs being laid in September. These are from

three to six in number, and vary considerably in size, shape, and colour; they are usually of a pale greenish-blue ground colour, thickly blotched and mottled with various shades of brown and lavender. They average 0.75 by 0.58. They are hatched at the end of twelve days. The young remain in the nest for about twenty-four days, during which time they are fed on grubs, caterpillars, and partially digested food from the crops of the old birds." The Cape Sparrow may be met with from time to time in the bird market; a pair was purchased by the London Zoological Society in 1887. This species was bred by Mr. Seth-Smith in 1901, who published an account of his experience, illustrated by an excellent plate representing both sexes, in *The Avicultural Magazine*, 1st series, Vol. VII., pp. 165-167.

GREY-HEADED OR SWAINSON'S SPARROW
(*Passer diffusus* [swainsoni]).

Above rufous-brown; lower back and rump bright chestnut; lesser and median coverts chestnut, the inner median coverts white-tipped; greater coverts brown, with the outer edges reddish; flights dark brown with reddish edges; upper tail-coverts and tail-feathers brown, with paler margins; head and neck all round and under surface dark grey, paler on throat and abdomen; under tail-coverts dull brown, edged with whitish; under wing coverts and axillaries rufous-brown, the latter edged with white; flights below dull ashy, slightly reddish on inner margins; beak black; feet reddish-brown; irides chocolate. Female paler, abdomen and under tail-coverts whiter, otherwise like the male.* Habitat, Bogos-land and Abyssinia to the Zanzibar district in East Africa (Sharpe); Africa generally. (Shelley.)

Von Heuglin ("Orn. Nordost Africas," Vol. I., pt. 2, p. 635) speaks of this Sparrow as living in pairs. He says: "Its behaviour, food, and call-note stamp it as a true Sparrow, only the call-note is more grating. We found its nests throughout the entire rainy season, sometimes in thatches, under roof-rafters, in holes in the wall, sometimes in thick thorn-bushes."

"The three-four eggs, moreover, much resemble those of the House Sparrow, are not larger, but at the same time somewhat smooth and more thick-shelled, marked with deep earthy-brown on a pale brownish ground." He figures an egg (Pl. 48, fig. 2) measuring 0.8 by 0.72. "Mr. Kuschel describes eggs from the Gold Coast as of a stout oval form, with thin shells and a moderate gloss, but very variable in colour, the ground being white or rusty yellow. Those with the white ground have dusky violet or brownish-red spots, clustered together at the thick end, so as almost to hide the pale ground colour, while those of a rusty yellow shade lack the violet marks, but the obtuse end is covered with brownish-red spots. They measure 0.77 to 0.88 by 0.63 to 0.64." (Shelley, "Birds of Africa," Vol. III., p. 255.)

Capt. Shelley calls this species *P. diffusus*, which Dr. Sharpe has regarded as a distinct species and Dr. Hartert as a distinct subspecies. He says that with an extremely fine series before him he is unable to find a difference to distinguish it as a sub-species; and this I can quite believe, seeing that our common Sparrow varies considerably in measurement and in purity of colouring. This bird is occasionally imported singly, or in small numbers, among other African birds. The London Zoological Society has received it from South Africa, and in 1895 I purchased one out of several then in the market: it proved to be a hen, and, being kept with Weavers and Buntings, it proved harmless enough,

but it never uttered a note. It died August 17th, 1900. I gave a short account of the bird in *The Avicultural Magazine*, 1st series, Vol. II., pp. 5-6.

DESERT SPARROW (*Passer simplex*).

Creamy buff, slightly ashy on crown and mantle; median wing-coverts pure white; greater coverts dull black, broadly tipped with white; flights dull buffish, browner towards the extremities, and edged with white, which becomes slightly yellowish on the outer webs of the secondaries; tail pale dull brown, darker towards the tip, and with buff margins, widest in centre feathers; the feathers at sides of forehead, in front of eye, and a few above the ear-coverts, black; cheeks, ear-coverts, and sides of throat white; chin and throat black; beak clear brownish, with the base white; feet yellowish; irides dark brown. Female yellower above, and without any black on head and neck. Habitat, Kordofan to the Libyan and Sahara deserts (Shelley).

Von Heuglin says that this Sparrow "feeds on grain near habitations, and in its habits resembles *P. montanus*, does not frequent the mountains, but inhabits the lowlands of Kordofan, Sennaar, and the wastes between Berber and Suakin." He says that the egg resembles that of the House Sparrow; but to anyone who examined the series of eggs of the latter bird figured in my "Birds' Eggs of the British Isles," Pl. IV., figs. 132-143, most of which were taken by myself, such a remark might mean anything, inasmuch as the eggs of the House Sparrow vary from the type of the Pied Wag-tail to that of a Common Bunting or a Tree Pipit. They are neither constant in size, shape, colouring, nor character of marking. Some eggs are like a common type of Cuckoo's egg; others almost like that of the Robin; others, again, like an elongated egg of the Skylark. Therefore, while saying that *Passer simplex* lays eggs like those of the House Sparrow, Von Heuglin might as well have completed his description by assuring us that they were about the size of a piece of chalk; but, oddly enough, he is precise in his measurements—0.85 by 0.6.

Dr. Russ appeared to be unaware that this species had been exhibited at the London Zoological Gardens, and therefore dismissed it in a few words as a bird unlikely to appear in the bird-market, and as rare in its native country.

J. I. S. Whitaker ("Birds of Tunisia," Vol. I., p. 209) says: "Although not uncommon in the localities it frequents, the bird appears to be somewhat local in its distribution, and is not found everywhere in the sandy desert."

On p. 210 he remarks:—"There seems to be some difference of opinion as to the description of country and localities most frequented by the Desert Sparrow, and also regarding the situations selected by it for its nest. All the evidence, however, points to the species being partial to sandy spots, and it probably occurs both on the outskirts of the oases and in the more open country, and nests in trees as well as in the holes of well-sides, or similar sites. Mr. Dodson, alluding to the birds of this species met with in Tripoli, says that he observed them only in palm-trees, where, apparently, they were breeding. Baron v. Erlanger . . . found a nest in the hollow of an old desert tree, and was informed by Herr Paul W. H. Spatz that these birds nested among the sticks forming the nests of some of the larger Raptores, built on similar desert trees. Dr. Koenig, on the other hand, appears to have found the species nesting in the crevices of well-sides."

"In many of its habits, as well as in its note, the Desert Sparrow seems to resemble the Tree Sparrow."

* The female described by Russ was evidently in winter plumage, the beak being horn yellowish with whiter under mandible.

It feeds chiefly on seeds, but also to a large extent on insects. Its nest is a rather bulky structure, compactly built of dry Halfa grass, wool, and feathers, and the eggs, which are usually three in number, are said to closely resemble those of the Tree Sparrow."

YELLOW SPARROW (*Passer luteus*).

Head, neck, and under surface bright yellow; remainder of body above chestnut, shading off into yellow on the rump; upper tail-coverts ashy-brown; lesser wing-coverts dull yellow; remainder of wing brownish-black; the median and greater coverts tipped with buff, tinged with chestnut; primaries narrowly edged with buff; secondaries broadly bordered with chestnut; wings below dull brown, the inner edges of the flights brownish buff; under wing-coverts mostly white; tail brown, with paler borders; under tail-coverts brownish buff, with dark centres; beak horn-coloured; feet pale brown; irides brown. Female with the yellow and chestnut of the upper parts replaced by pale brown; under parts buff, washed with brown on the sides of head, neck, and body. Habitat, N.E. Africa.

Von Heuglin again likens this bird in habits, note and eggs to the House-Sparrow, but he tells us that the eggs are three or four in number, white spotted with brown.*

According to Captain Shelley ("Birds of Africa," Vol. III., p. 259), "the Hon. N. C. Rothschild and Mr. A. F. R. Wollaston found these beautiful yellow Sparrows exceedingly abundant at Shendi, increasing in numbers towards the end of March. Flocks of fifty and upwards might be seen at any time flying northwards along the river bank; they were never seen to proceed in the other direction. They are very partial to water, and might sometimes be seen in enormous flocks bathing in the shallow pools of the river."

"On the White Nile, according to Mr. Witherby, 'This species was common and well distributed. Generally to be found in small flocks of twenty or so. it was very wild, and frequented the bushes and trees in the more open country. When flying it has a twittering Linnet-like note, while in the trees it chirps like a House-Sparrow. We saw an enormous flock of these birds in some tall bushes on the river-bank near Kawa. They were exceedingly restless, rising in clouds from the bushes as we approached and settling again further on, only to rise when we neared them.'"

Dr. Russ lamented that only males of this Sparrow were imported; he received three from Lintz of Hainburg, and a fourth from Miss Hagenbeck. It has been exhibited at the London Zoological Gardens, and of late years has been secured by several private students of bird life. Dr. Russ considered it by no means spiteful, but Mr. Seth-Smith came to an opposite conclusion with respect to it. The Yellow Sparrow was bred by Mrs. Howard Williams in 1904, and an account of her experience published in the *Avicultural Magazine*, N.S., Vol. III., pp. 75-77.

GOLDEN SPARROW (*Passer euchlorus*).

Bright yellow; wing coverts paler yellow; flights and tail-feathers dark brown with pale borders, broad on the secondaries; beak and feet pale brown; irides brown. Female pale brown; a few dark markings on mantle; sides of head buff, slightly browner on the ear-coverts; under parts buff, yellower on the throat. Habitat, Arabia and Eastern Abyssinia.

* W. G. Porcival (*The Avicultural Magazine*, N.S., Vol. IV., p. 283) says:—"I took eggs of the latter recently, the nest was very roughly built of twigs, partially downed and lined with cotton. Eggs, three in number, more round than oblong, dirty white streaked and blotched with dark chocolate all over."

According to Colonel Yerbury (see Shelley, "Birds of Africa," Vol. III., p. 260), "one or more big flocks have established themselves now in Aden itself, breeding in the thorny trees at the tanks and alongside the gaol wall. They are gregarious, and build a thick nest of thorny twigs." This beautiful little Sparrow has been exhibited at the London Zoological Gardens, but Dr. Russ seems to have overlooked the fact, and speaks of it as unlikely to be imported. Now that it has established itself at Aden it seems to be extremely likely to become much better known in the trade than formerly. The Contessa Baldelli appears to have secured specimens in Italy in 1903. (See *Avicultural Magazine*, N.S., Vol. I., p. 305.)

Like all the Sparrows, this species would probably do well upon millet, canary, oats, and hemp, with a few living insects, their larvæ and pupæ, or spiders; I should also give a little fruit and soft food.

Next to the Sparrows Dr. Sharpe has placed the Serins or Canaries; but, unless Prof. Ridgway is correct in regarding the Saffron-finches as Buntings,* it seems to me that they, both in their nesting-habits and in the colouring of their eggs, show much closer affinity to the Sparrows; moreover the Rose-finches with their Canary-like call-notes should not, I think, be widely divorced from the Serins. I shall therefore take *Sycalis* next.

SAFFRON-FINCH (*Sycalis flaveola*).

The cock is of a bright greenish yellow above, the feathers of the mantle and upper back being streaked with dusky lines; the wing feathers blackish, edged with brighter or duller yellow; the tail feathers also blackish, with bright yellow outer and paler yellow inner edges; the crown of head and back of neck bright greenish yellow, the forehead bright orange, the cheeks and throat yellowish orange; under surface of body bright yellow, the sides being slightly greenish; the beak horn brown, the lower mandible being pale; the iris of eye greyish brown; the legs brownish flesh coloured; entire length about 5½ inches. The hen is a little duller above and paler below than the cock, but otherwise is very similar. Habitat, Southern Brazil to New Grenada and Venezuela.

When in the neighbourhood of towns these birds and their close allies frequently build large nests, lined with horsehair, in holes in walls; but if in the open country they select holes in decayed trees or deserted nests of other birds in which to build. Their eggs, which somewhat resemble those of a Sparrow, are usually five in number. In an aviary the cigar-box type of receptacle is preferred for nesting purposes. If kept in a large cage or Crystal Palace aviary with Canaries, the Saffron-finch is unbearable; he charges the poor things incessantly, and makes their feathers fly wholesale; but in a large aviary, with Weavers and other strong species, I have found him very innocent—excepting towards members of his own genus—and even amusing, but especially in the breeding season at roosting time, for then the cock and hen play a game of hide-and-seek, only they always hide in the same receptacle, usually a German Canary-cage; the cock crouches down in a Canary nest-box whilst the hen hides, suddenly he darts across to the opening, and out she bolts past him and takes possession of his box; he follows her and she darts back, and so the game goes on until both are weary. The song of this bird is not particularly pleasing, though hearty.

This bird has been called Brazilian Sparrow, but the only respect in which it resembles a Sparrow is in the

* I made the same suggestion myself many years ago.

colouring of its eggs; it does, indeed, build in holes as Sparrows often do, but it forms a nest like that of a Greenfinch, though with more nearly the materials which a Bunting would select; indeed, from its colouring and its habit of walking, instead of hopping, when on the earth, this species was at one time believed to be related to *Emberiza*. Its name of Brazilian Canary, recognised in several European languages, is not inappropriate apparently, since the genus *Sycalis* replaces *Serinus* in South America. It has several close relatives, with similar habits, and which are occasionally offered for sale under the same name.

S. flaveola pairs freely with *S. pelzelni* in an aviary, and the resulting young are perfectly fertile, the males being usually indistinguishable from the sire of the Saffron-finch, but the females more nearly approaching their mother. I have bred many of these and pure-bred Saffron-finches, both in aviary and cage; they are extremely quarrelsome, resembling the Chaffinches in disposition and in their savage courtship.

Formerly it used to be thought a hopeless impossibility to obtain a hybrid between the Saffron-finch and the domesticated Canary, it being asserted that the former did not feed its young from the crop; this, however, I soon discovered to be a fallacy. The fact is that attempts were always made with a cock Saffron-finch and a hen Canary, and I suspect the rough courtship of the American bird was too much for the more timid *Serinus*; but in 1893 I had my Canaries and Saffron-finches in an aviary together, and noticed that the cocks of the former pursued and sang to the hens of the latter. One hen went to nest and, after the removal of the Canaries, reared three young unaided. Two of the young unfortunately died during their moult; but the third (a hen) lived for many years. At first it showed a good deal of Canary colouring, especially in the wing-feathers; but with advancing years it became much more like its mother, and might easily have passed for a small bright-coloured *S. flaveola*; nevertheless it is significant that a cock Saffron-finch subsequently associated with it in another aviary persistently ignored it. Since then other aviculturists have had fertile eggs from the same cross.

PELZELN'S SAFFRON-FINCH (*Sycalis pelzelni*).

Yellowish olive-green, the back streaked with blackish; lower back and rump yellow with an ashy tinge; wing and tail feathers black with yellow edges; forehead bright orange, sides of head and under parts bright yellow, back of ear-coverts rather duller, as well as the sides and flanks, the latter streaked with blackish; beak dark horn-colour; feet yellowish-brown; irides dark brown. Female above dull brownish grey, mottled with blackish; under parts ashy whitish; the breast streaked with dusky brown. Habitat, S. Brazil, Paraguay, and Argentina.

Hudson says of this species ("Birds of Arg. Rep.," Vol. I., pp. 66-68):—"They remain with us all the year and live in pairs, the sexes of this species being faithful. Sometimes they are seen associating in small flocks, but I am inclined to believe that only the young unmated birds are gregarious.

"In spring and summer the male sings frequently with great energy, but without much melody. After a hurried prelude of sharp chirps and trills, he pours out a continuous stream of sound, composed of innumerable brief notes, high and shrill as those of a bat, wounding the ear with their excessive sharpness, and emitted so rapidly that the whole song is more like that of a cicada than of a bird. This piercing torrent of sound is broken at intervals by a low grave note, or half a dozen sharp

rapid notes in a lower key, which come as an agreeable relief."

"In towns they build in walls, like the English Sparrow; in country places they always select the domed nest of some Dendrocolapine species to breed in. Possibly in some districts where I have not been, this Sparrow selects other breeding-sites; my experience is that outside of a town it never lays anywhere but in some domed nest, and at home I frequently put up boxes for them in the trees, but they would not notice them, though the Wrens and Swallows were glad to have them. Sometimes they make choice of the large fabric of the *Anumbius acuticaudatus*, called Leñatero in the vernacular; but their claim to this nest (even when the Leñateros are out of it) is frequently disputed by other species which possess the same habit as this Sparrow, but are more powerful than he. Their favourite breeding-place is, however, the solid earthen structure of the Oven-bird; and it is wonderful to see how persistently and systematically they labour to drive out the lawful owners—birds so much larger and more powerful than themselves. Early in spring, and before the advent of the Tree-Martins, the pair of Sparrows begin haunting the neighbourhood of the oven they have elected to take possession of, usually one pretty high up in a tree. As the season advances, their desire towards it increases, and they take up their position on the very tree it is in; and finally a particular branch near the oven, commanding a good view of the entrance, is chosen for a permanent resting-place. Here they spend a great portion of their time in song, twitterings, and loving dalliance, and, if attentively observed, they are seen with eyes ever fixed on the coveted abode. As the need for a receptacle for the eggs becomes more urgent they grow bolder, and in the absence of the owners flit about the oven, alight on it, and even enter it. The Oven-bird appears to drive them off with screams of indignation, but the moment he retires they are about it again, and, even when it contains eggs or young birds, begin impudently carrying in feathers, straws, and other materials for a nest, as if they were already in undisputed possession. At this stage the Tree-Martins (*Progne tapera*) perhaps appear to complicate matters; and even if these last comers do not succeed in ousting the Oven-birds, they are sure to seize the oven when it becomes vacant, and the Sparrows, in spite of their earlier claim, are left out in the cold. But they do not take their defeat quietly, or, rather, they do not know when they are beaten, but still remain to harass their fellow-pirates, just as they did the Oven-birds before, bringing straws and feathers in their beaks, and when forced to drop these materials and chased from the neighbourhood with great noise and fury by the Tree-Martins, it is only to return undaunted in a few minutes, bringing more straws and feathers.

"This Sparrow makes a rather large nest, neatly lined with horsehair, and lays five eggs, long, pointed, the entire surface thickly marked with dull chocolate brown."

I imported this species from La Plata in 1893, and turned it into one of my birdroom aviaries with the common Saffron-finch. The male died soon after I received it, but the female, as already stated, interbred with the better-known species and produced young, which again bred until eventually no characteristics of *S. pelzelni* remained.

Dr. Russ seemed to be unaware of this species as a cage-bird; but coming from the Argentine Republic, it is probable that it is not infrequently received and sold as the common Saffron-finch.

YELLOWISH FINCH (*Syrrhaptes arvensis*).

Above pale olive-green, mantle and upper back broadly streaked with blackish-brown; wing, excepting the lesser coverts, which are greenish yellow, deep brown, the feathers with pale borders; tail similar; eyebrow-stripe bright yellow; below, the throat and breast are dull ashy buffish, the lower breast and abdomen bright yellow; beak and feet horn-colour; irides brown. Female, browner, the back less yellow, as also the lores and eyebrow-stripe; yellow of under parts paler. Habitat, South Brazil, Argentina, Bolivia, and Chili to South Peru.

Dr. Sharpe distinguishes three sub-species of this bird, among which *S. luteiventris* (which has white on the outer tail-feather) may possibly be fairly distinct; but when one has bred dozens of *S. flaveola* and seen how many plumages it assumes before attaining its final colouring, and how it also varies in size, it makes one very sceptical about the validity of sub-species based upon slight colour-differences. I am not even sure that the characters by which the sexes of *S. arvensis* are usually distinguished are constant, inasmuch as the last specimen of mine which died (always supposed to be a male on account of its brilliant colouring) proved after death to be an undoubted female with fully developed ovary, was larger and brighter than a male which died six years previously, and almost as bright as a considerably larger male which died two years previously. Now, supposing this largest bird to be typical *S. arvensis*, what are we to do with the smaller and less bright form (the female of which is brighter than its male)? It will not fit the description of any one of the sub-species.

Messrs. Selater and Hudson ("Arg. Rep.," Vol. I., pp. 69-71) call this *Syrrhaptes luteola*, and describe its habits as follows:—"This is a slender, graceful bird, less than the Canary in size.

"This species is resident and gregarious in the Argentine Republic, and in autumn frequently congregates in flocks of several thousands. They are not so universally distributed as the Chingolo, and are not wood-birds, but frequent open plains abounding in thistles and other coarse herbage, which affords them shelter. In cultivated districts, where their food is most abundant, they are excessively numerous, and, after the harvest has been gathered, frequent the fields in immense flocks. While feeding, the flocks scatter over a large area of ground, being broken up into small companies of a dozen or more birds, and at such times are so intent on their food that a person can walk about amongst them without disturbing them. They take flight very suddenly, bursting into a thousand chirping, scolding notes, pursue each other through the air, and, after wheeling about the field for a minute or two, suddenly drop into the grass again and are silent as before.

"In August they begin to sing, here and there an individual being heard in the fields, but when the weather grows warmer they repair to the plantations in vast numbers, and, sitting on the branches, sing in a concert of innumerable voices, which produces a great volume of confused sound, and which often continues for hours at a time without intermission.

"By-and-by these pleasant choirs break up, the birds all scattering over the plains and fields to woo and build, and it is then first discovered that the male has a peculiar and very sweet song. Apart from his fellows, he acquires a different manner of singing, soaring up from his stand on the summit of a bush or stalk, and beginning his song the moment he quits his perch. Ascending, he utters a series of long, melodious

notes, not loud, but very distinctly enunciated and increasing in volume; at a height of fifty or sixty yards he pauses, the notes becoming slower; then, as he descends with a graceful spiral flight, the wings outstretched and motionless, the notes also fall, becoming lower, sweeter, and more impressive till he reaches the earth. After alighting the song continues, the notes growing longer, thinner, and clearer, until they dwindle to the merest threads of sound, and cease to be audible except to a person standing within a few yards of the songster. The song is quite unique in character, and its great charm is in its gradual progress from the somewhat thick notes at the commencement to the thin, tremulous tones with which the bird returns to earth, and which change again to the excessively attenuated sounds at the end.

"The nest is deep, well-built, and well-concealed, sometimes resting on the ground, but frequently raised above it. It contains five long, pointed eggs, with a white or bluish-white ground-colour, and thickly spotted with brown."

I have quoted the full account of the song of this bird, because it shows how exhilarating the climate of Argentina must be when a very third-rate performance can arouse such enthusiasm in the mind of the listener. Heard in an English aviary the song is a trifle more musical than that of the Common Saffron-finch; but, like many of the songs of Argentine birds it is just that sort of thing which can be produced by screwing round the lid of a circular wooden box.* The flight is graceful and pleasing, resembling that of the Grey Singing-finch in its fluttering butterfly-like character.

My birds built in 1907 in a cigar nest-box hung high up in the small aviary where I kept them, but the hen never settled down to lay and eventually died, leaving the cock bird solitary.

Millet, canary, and green food, with a little soft food suit all the Saffron-finches well.

We now come to the SERINS or CANARIES, which do well upon the same food as Saffron-finches.

CAPE CANARY (*Serinus canicollis*).

This species is yellow, greenish above, excepting on the crown, nape, and lower back; the nape is grey; the scapularies and mantle with dark shaft-streaks; flights and tail-feathers blackish, with yellow outer margins; beak pale horn colour; feet greyish-brown; iris dark brown. Female browner on mantle and back; streaked with dusky brown; crown pale yellow with dusky streaks; below paler yellow. Habitat, Cape Colony, where it is resident. Natal, the Orange Free State and Transvaal: introduced into Réunion.

Messrs. Stark and Selater ("Birds of South Africa," Vol. I., pp. 168, 169) say:—"This well-known and favourite cage-bird is, in its wild state, a common resident in nearly all districts that are overgrown with bushes or low trees varied with open glades and clearings. It is perhaps more abundant on the bush-clad slopes of hills and mountains as well as in gardens and shrubberies, and I have met with it in some numbers among the low scrub on the sandy coast of Little Namaqua Land. In autumn and winter small flocks frequent the more open pasture and ploughed land, to feed, with other Finches and Weaver birds, on small seeds and insects that they find on the ground. The justly admired song of the Cape Canary is prolonged and very sweet, and is compared by Dr.

* My little grandson, who is a very musical child, remarked that it sounded "like twisting round a cork in a bottle," when I asked him if he thought it was a pretty song. The song often resembles the running down of a broken watch-spring.

Russ to that of a Lark. Individual birds, however, even in a wild state, differ remarkably in the singing powers, some being far superior to others in the richness and fullness of their notes. The cock of this species has, in confinement, been known to pair with the hen of both the Common Cage Canary and the Yellow-bellied Seed-eater.

"In Cape Colony the Cape Canary usually breeds in September and October, in Upper Natal in October and November. The nest, neatly constructed and cup-shaped, is built in a thick low bush, of dry grass and bents, with sometimes a little moss, lined with hair, feathers, and downy seeds. The eggs, three or four in number, are white, faintly tinged with blue, and streaked and spotted at the obtuse end with purplish-brown and reddish-brown. They measure 0.75×0.55 .

This species is also called the Grey-necked Serin, which, perhaps, is a better name for it, when one considers that several other species have borne the name of Cape Canary incorrectly.

Some years ago Mr. Abrahams kindly sent me an old male bird of this species in order that I might become acquainted with its song, which has been greatly praised. It did not live for many months after I received it, but its song was decidedly pleasing—a clear, ringing trill, with little variation, but no shrill notes. Like most of the African Serins, it was fed chiefly upon canary and millet, certainly the most wholesome food for Canaries, excepting when breeding or moulting, when all Serins are the better for more variety.

SULPHUR SEED-EATER (*Serinus sulphuratus*).

Above greenish-yellow, with blackish streaks, excepting on rump and upper tail-coverts and lesser wing-coverts; remaining wing-feathers blackish, with yellow borders; a broad golden-yellow eyebrow streak; lores dusky; feathers encircling eye, ear-coverts, and cheeks, dull greenish; a spot at base of lower mandible, a broad stripe under the ear-coverts, and the throat golden-yellow; sides of neck, breast, and sides of body pale greenish-yellow; remainder of under surface yellow; flights below dusky, with the inner margins grey; upper mandible dull yellowish, lower mandible pale yellow; feet dull brown; irides hazel. Female smaller and duller, the yellow stripe on the face smaller and duller. Habitat, Cape Colony, the Orange Free State, Natal, the Transvaal, and northward on the east side of Africa to Masai-Land.

Messrs. Stark and Selater say ("Birds of South Africa," Vol. I., p. 170): "This large and conspicuously-coloured Seed-eater is rather common in many parts of Cape Colony, both on open pasture land and in bushy localities. In winter these birds form considerable flocks, often joining with other Finches to search for seeds on the ground. The principal part of their food, however, consists of small berries and their seeds; the latter they crack with their powerful bills for the sake of the kernels. In spring the males sing delightfully, their notes being both powerful and mellow; for this reason they are frequently kept as cage-birds, and even exported to Europe. The nest, usually built in September in Cape Colony, is a small and neat cup-shaped structure, and is nearly always placed in a low bush, rarely more than 4ft. above the ground. It is constructed outwardly of dry grass-stems and the smaller stalks of plants, and is lined with finer grass and cottony down. The eggs, generally four in number, are either white or white faintly tinged with blue; about one-half of them are unspotted; the remaining half have a few deep black spots, or one or two zig-zag mark-

ings towards the larger end. They are usually somewhat elongated, and tapering towards the smaller extremity. They average 0.85 by 0.60 .

"Incubation lasts for fourteen days, and the young remain in the nest for from three to four weeks. During this period they are fed on insects and on the contents of the crops of the parent birds."

Though common in some parts of South Africa, this bird is rare in the bird-market, and not cheap. Mr. Abrahams sent me a male in November, 1899*, and I turned it into a flight-cage with a hen Canary; it seemed pleased to have even so much liberty after being confined in a small cage, and whistled a few notes hardly worthy of the name of a song, but afterwards became quite mute. As it never showed any inclination to breed, I subsequently turned it out into a moderate-sized aviary with the other birds. It struck me as being a particularly stupid, silent, but quite inoffensive bird. It died early in 1901.

In November, 1906 Lieut. Honsbrugh sent me two Serin-finches, one of which sang very prettily; both were probably aberrant forms of the following:—

ST. HELENA SEED-EATER (*Serinus flaviventris*).

Above the crown is greenish-yellow, with dusky spots, the mantle and back yellowish-green streaked with black; the rump yellow; lesser wing-coverts greenish-yellow, the remaining wing-feathers blackish-brown, with yellow borders; tail-feathers similar; forehead and a broad eyebrow-stripe, as well as feathers encircling eye golden yellow; lores dusky; ear-coverts greenish-yellow; cheeks and entire under surface golden yellow; beak horn-coloured, the upper mandible dusky; feet dusky brownish; irides hazel. Female much duller and browner; the back much more heavily streaked; all the yellow either replaced by green as on the rump, paler yellow, as on the borders of the wing and tail feathers, or greyish-white, as on the abdomen and under surface of the flights; breast and flanks streaked with smoky brown. Habitat, Cape Colony to the Orange Free State and the Southern Transvaal; common at Potchefstroom; introduced into St. Helena.†

Messrs. Stark and Selater say ("Birds of South Africa," Vol. I., pp. 171, 172):—"Although not such a favourite cage-bird as the 'Cape Canary,' the 'Kleine Seisje' is by no means a despicable songster, many of its notes being exceedingly true and sweet. In the neighbourhood of Saldanha Bay, where it is, together with the larger *Serinus albicollis*, abundant among the bushes that overgrow the sandhills at the back of the beach, it breeds in September. A nest found on the 28th of this month, with five fresh eggs, was placed in the top of a low bush about 15in. off the ground. It was slightly but neatly constructed of small twigs and dry grass-bents, and was thickly lined with the cottony seeds of a bush that grew not far off. The eggs are of a faint blue-green ground-colour, sparsely zoned and marked at the large end with small spots of dark and light reddish-brown. They measure 0.70 by 0.52 ."

I purchased a pair of this species about 1889 or 1890, and lost the hen in 1891, whereas the male was still singing vigorously in 1898. The cock is a most melodious singer, and does not produce the ear-piercing notes of the Norwich Canary. In an aviary with Weavers of its own size it is quite capable of holding its own, and when groundsel or other green food is supplied it will

* He probably saw my statement, published that year in "Foreign Bird-Keeping," that I had never possessed the species.

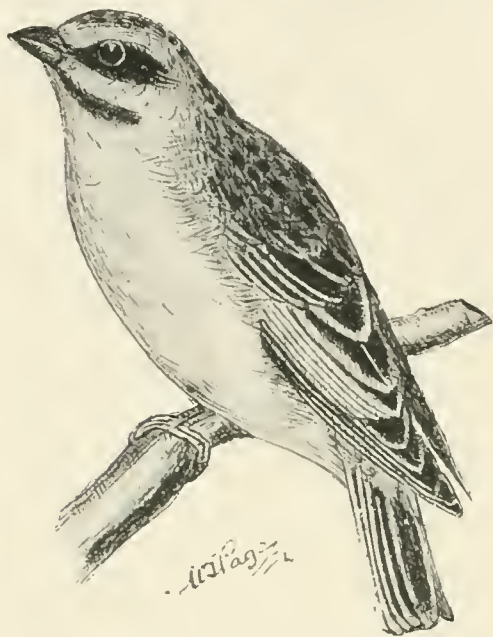
† Captain Shelley has distinguished this bird by a separate name, calling it *S. marshalli*, but he himself thinks it may be a descendant of the slightly different typical form from the Cape.

drive away Saffron or Nonpareil Finches until its own appetite has been appeased. It is said to have crossed with the domesticated Canary, but I find it very spiteful when paired up with unmarked hens. With a rather heavily splashed bird it was friendly, but without result, owing to the inopportune illness of the latter.

In spite of what was stated by Stark respecting the song of this bird, there is not the slightest question that it is a far more meritorious performance than that of the Cape Canary, the latter being akin to the pea-whistle repetitions of the trained Hartz bird, whereas the song of the St. Helena Seed-eater is a loud replica of the Lark-like song of the Grey Singing Finch.

GREEN SINGING FINCH (*Serinus icterus*).*

This species nearly resembles the St. Helena Seed-eater, but is smaller; its beak is not quite so powerful;



THE GREEN SINGING-FINCH.

the green colouring on its back is usually less pronounced, and the yellow of the under parts clearer and less clouded with greenish. The female is less brilliantly coloured, somewhat browner above, with the yellow margins to the wing-coverts less distinct; a white spot on the chin. Habitat, Western Africa from Senegambia to Angola, and the whole of Eastern Africa to Natal and the eastern side of Cape Colony; it has been introduced into several of the Mascarene Islands.

Respecting its wild habits, Messrs. Stark and Selater say ("Birds of South Africa," Vol. I., p. 174):—"In its habits it is lively and excitable, but at the same time tame and confiding. In the spring of the year the cock is much given to chasing the hens, as well as intruding males of his own species, when not uttering his melodious song of seven flute-like notes from the top of a

hush. During the winter months these seed-eaters collect in small flocks and frequent open ground and stubble fields in search of the small seeds which they habitually eat. They frequently feed along with other Finches and Waxbills. In summer they vary their diet with small beetles, caterpillars, and other insects, and I have even seen individual birds taking flies on the wing. They are fond also of sipping the nectar from the blossoms of certain creepers that are much frequented by Sunbirds. Owing to its pretty plumage, its gay and lively disposition, and its charming song, this species is frequently caught and caged, and is even exported to Europe as a cage-bird.

"The nest, a neat and pretty cup-shaped structure, is built in a low bush, in September or October, of dry stalks of grass and flowers, lined with finer grass and cottony down. From three to five eggs are laid of a pale bluish ground-colour, sparingly spotted towards the larger end with pale reddish-brown. They measure 0.68 by 0.2.

"The female sits for twelve or thirteen days, and the young remain in the nest for about twenty-four days. They are fed on insects, and are at first covered with yellowish-white down."

If the above account of the nidification of the Green Singing Finch is correct, it is very strange, because the colouring of the eggs is quite unlike that recorded by all those who have observed its nesting habits in captivity. This bird has nested several times in my aviaries, as recorded in *The Feathered World* for March 19th, 1897, and elsewhere; but, strangely enough, in each case the eggs mysteriously disappeared soon after the hens began to sit. They are creamy white, and frequently absolutely without markings, but sometimes with a few largish pale buff spots on the obtuse end. In the breeding season the male bird becomes spiteful towards other Serins, including the common Canary, one of which was so much injured by a male Green Singing Finch that I had to remove it from the aviary.

It is generally believed, and I think rightly, that the cock bird often devours the eggs laid in captivity. Though much like a small St. Helena Seed-eater, this bird is less pleasing. Its song is inferior, being more shrill and less continuous; the sexes are more sociable, invariably roosting close together at night, and even by day they are rarely far apart. The Green Singing Finch will breed freely in an indoor aviary, building a nest not unlike that of a Redpoll. Scalded or soaked millet seed has been recommended as food for the young of this and many other species, but it seems unreasonable that nestling Finches, which are fed from the crop upon partly digested food, should need this preparation of their seed. Some form of egg-food is beneficial, and a piece of fresh turf might be kept in the aviary for the pleasure of this or other species.

According to the late Mr. Abrahams, two species (not admitted as distinct by scientific workers) are confounded under this type of Serin. He tells me that the species which I have figured and described in "Foreign Finches in Captivity" is the Bearded Seed-eater, and differs from the true Green Singing Finch in its brighter colouring, blacker moustachial streak, and pale tips to the tail feathers. Von Heuglin, who described the Bearded Seed-eater under the name of *Critkagra barbata*, says of the female that it is paler, with narrower frontal band, the moustachial streak blackish olive colour, every feather edged with olive-greenish, the tips of the outer tail feathers very indistinctly and dusky margined with yellow whitish. *A propos* of this it is a singular fact that of the four or five pairs of this species which I have had, all the males have been Bearded Seed-eaters and all the females Green Singing

* Capt. Shelley restores the name *butyraceus*, and I believe he is correct in doing so, but it is convenient to follow the "Catalogue of Birds," as has been done by Messrs. Stark and Selater.

Finches. Therefore, whilst I will not be so bold as to say that males of the pale type may not occur, I should be inclined to regard them as probably the early plumage of the species; and dark hens, if they exist, might represent the senile plumage. I can hardly think it possible that two species so closely related could co-exist in the same regions, for they would infallibly interbreed, as they certainly do in captivity, and probably produce fertile offspring.

WHITE-THROATED SEED-EATER (*Serinus albicularis*).

Greyish wood-brown, with slightly darker centres to the feathers; rump and upper tail-coverts olivaceous yellow; wing and tail feathers dark brown with pale margins; eyebrow-stripe and cheeks white; below mouse-brown; throat, centre of abdomen, and under tail-coverts white; under wing-coverts partly tipped with white; beak horn-brown, paler at base of lower mandible; feet flesh-brownish; irides brown. Female rather smaller and duller. Habitat, Cape Colony.

In Stark and Selater's "Birds of South Africa," Vol. I., pp. 175, 176, are the following notes on the habits of the species:—"This large and soberly coloured Seed-eater is very common to the north of Cape Town, especially towards Saldanha Bay, a locality in which Laysan noticed its abundance in his time. Here it inhabits the bush-overgrown sand-dunes close to the beach, and feeds on the seeds of several of the more common weeds. In spring the cocks sing loudly and melodiously from the tops of the bushes, their song being, to my ear, superior to that of the Cape Canary. About the beginning of September they proceed to build their nests, open cup-shaped structures, in the bushes, frequently in a "milk-bush" about four feet above the ground. These are rather loosely constructed of thin, pliable twigs and dry grass-stems, and are invariably lined with the white downy blossoms of a common weed. Towards the end of the month the females lay three or four eggs of a very faint bluish white, sometimes plain, more often sparingly marked at the large end with one or two spots or hair-like streaks of deep purplish-black. They average 0.80 by 0.60.

"Both the male and female sit very closely on their eggs, and defend their nest valiantly against aggressors. On almost every occasion on which I have inspected a nest of this bird I have had my fingers pecked for my pains, and with their powerful bills they can inflict a severe bite. On one occasion I saw a pair of these Finches attack a large snake with great courage and success.

"The young are fed on insects and macerated seeds from the crops of the old birds. They remain in the nest for a little more than a month."

About 1895 my old colleague Dr. Sharpe gave me an example of this species which he had owned for some little time, but which I believe on one occasion had escaped from its cage and injured its skull by flying against the window; it never sang a note and I marvelled that Dr. Russ should speak of it as a lovely singer, but after its death on April 24th, 1896, I discovered that it was a hen. I think it probable that it is, as Stark says, a very melodious songster, but it is certainly no beauty; it has the beak and general colouring of a London hen Sparrow with just a touch of the Greenfinch on its rump and upper tail-coverts.

GREY SINGING-FINCH (*Serinus leucopygius*).

Above ashy-brown with darker brown centres to the feathers, the head greyer than the back; feathers of lower back blackish-brown with greyish tips; rump white; lesser wing-coverts pale brownish-ash; remainder of wing and tail-feathers dark brown with pale margins;

throat ashy whitish; breast pale brownish-ash slightly mottled with dusky; breast and abdomen white slightly stained with buffish, washed at the sides with ashy and streaked with dusky; beak pale fleshy horn-colour; feet flesh-coloured; irides brown. Habitat, North-Eastern and Equatorial Africa.

The female of this species has not been differentiated in scientific works; it is a trifle smaller than the male, and generally (if not always) rather more distinctly streaked with dusky on the sides and flanks.

In Capt. Shelley's "Birds of Africa," Vol. III., pp. 216, 217, we read:—"Heuglin met with the species in the Bongo country, which is watered by the Gazelle river. At the Blue Nile he found a nest which was cup-shaped and deep inside, it was constructed of a kind of hemp mixed with hairs and seed-down and lined with feathers, hair and down. It was placed about five feet from the ground, and contained three eggs, which were pale greenish grey spotted at the thick end with brownish red and dusky brown; they measured 0.6 by 0.46. In this district, near Senaar, it frequents the native villages and the surrounding pasture-land, and may be seen in flocks feeding on the ground, or perched on bushes or rocks near water."

I am afraid Von Heuglin was a bit careless in ascertaining the ownership of the nests which he discovered. The eggs of the Grey Singing-finch are familiar to many aviculturists, to me among others; for, although I have never succeeded in breeding the species, I have on several occasions got as far as nests and eggs; the latter are creamy or pearly white, sometimes with a few small black spots at the larger end.

The strength of voice in this sweet singer and its energy have often astonished me; though no larger than a Zebra Finch it will sit upon a branch and sing away almost incessantly hour after hour, pouring forth a melody not unlike that of the St. Helena Seed-eater, but, at the same time, more varied and better sustained. It is a gentle, nervous little bird, and, though it looks delicate, is tolerably hardy; it will readily build a neat and compact little open nest on the floor of a German Canary cage in an indoor aviary, and lay four or five little pure white eggs; provided that the hen does not succumb to egg-binding, to which I have found it liable, the Grey Singing-finch will rear its young on the same diet as a Canary.

The flight is extremely graceful and pretty, reminding one somewhat of that of a white butterfly. To see it to perfection two or three cock birds should be kept together in a large aviary, for, although they will fight and sing alternately from morning to night, all the fighting takes place on the wing, and, beyond the loss of a few small feathers, very little harm is done. There is no malice in it, for directly after a combat the birds may be seen feeding side by side at the same hopper. Before and after a fight the birds will often sit on different branches singing against one another. The music is exceedingly rapid and melodious, without one unpleasant note; indeed there is no other Finch, whether British or foreign, which I have heard, that can compete with this tiny songster; Mr. Teschemaker however says that the allied Yellow-rumped Serin surpasses it.

YELLOW-RUMPED OR ANGOLA SERIN
(*Serinus angolensis*).

Closely resembles the preceding species excepting that it has the rump yellow instead of white, the forehead brownish white, a slightly browner tint above and faint washes of yellow on the primaries and axillaries. The female has not been differentiated in scientific works.

Habitat, Orange River to the Zambesi and Congo districts and Uganda.

Major S. R. Clarke (*The Ibis*, 1904, p. 523) states that the habits of this species are similar to those of *S. marshalli* (the St. Helena Seed eater in its slightly modified form); he describes the iris as "dark brown; the beak and legs horn-coloured," but in Layard's "Birds of S. Africa" the feet are described as "flesh-coloured"; they probably resemble those of the Grey Singing finch and are fleshy-horn in tint, or pure flesh-coloured in fully adult birds.

In *The Ibis* for 1906, p. 353, Mr. A. H. Evans mentions *S. angolensis* among the birds observed by him on the Magaliesberg Range, and he says:—"We had admirable opportunities of studying the habits and listening to the notes of the species observed, and only regretted that our time was so limited." Unfortunately he has not, apparently, published the result of his study and attention to bird-notes, so we must fain fall back upon the experiences of aviculturists.

In 1907 Mr. W. E. Teschemaker bred the Yellow-rumped Serin from birds imported from the Transvaal the previous year. He has published an account of his experiences in *The Avicultural Magazine*, N.S., Vol. V., pp. 198-200. He tells us that "the three eggs in one clutch were of a light blue ground colour and absolutely unspotted. The other clutch had a warmer ground colour, one egg being freely spotted with small brown spots, the second having one or two brown spots, and the third no spots at all."

Birds hatched in a warm indoor aviary were hatched but not reared, but those hatched by birds exposed to the rigours of a severe winter in an outdoor aviary were reared successfully. Mr. Teschemaker attributes the success of the birds outside to the fact that they were able to procure insect food; but I think pure air had far more to do with it, since Goldfinches even in an indoor aviary often succeed in rearing their young without the help of insect food, and many other Finches which, in their wild state, would partly feed their young upon insect food from their crops, have been known to rear them in comparatively small cages upon egg and biscuit alone. Undoubtedly the open-air aviary is the ideal enclosure for breeding birds in.

HIMALAYAN OR RED-FRONTED SEED-EATER (*Serinus pusillus*).

General colouring above blackish-brown; every feather more or less broadly bordered with yellow; the median and greater wing-coverts tipped with ashy whitish, and the distal extremities of the secondaries edged and fringed with the same; upper tail-coverts black with broad ashy-white borders; tail-feathers blackish, faintly washed at base with yellow and edged with whitish; crown of head blackish with the forehead orange-red; sides of head and the throat blackish; under surface of body golden yellow; the breast spotted with black; centre of abdomen white; sides and flanks streaked with black; under wing-coverts and axillaries golden yellow ashy at base; flights below dusky with ashy inner margins; beak black with whitish gape and base of upper mandible brownish; irides blackish-brown. Female duller, the yellow colouring and frontal patch paler. Habitat, "From the Caucasus and Northern Persia to Turkestan, wintering to the southward in Asia Minor as far as the Lebanon and in the North-western Himalayas" (Sharpe).

Speaking of the Birds of the Caucasus (*The Ibis*, 1883, p. 9), the late Henry Seebohm says:—"The Red-fronted Finch is found throughout the steppes and in the

rhododendron region, descending to the plains only in winter."

Jerdon tells us that, according to Hutton, who observed it at Mussooree, "it appeared to be always in pairs, and, like our Siskin and Goldfinch, is very fond of alighting upon the tall coarse nettles which abound there." Griffiths observed it clinging to and feeding on thistles in flocks, and describes it as rather shy; Adams, who saw it in flocks at Ladakh, describes its habits and call-note as "like those of the European Redpoll." (See "Birds of India," Vol. II., p. 411.)

The following notes are from Hume's "Nests and Eggs of Indian Birds," 2nd ed., Vol. II., pp. 155-156.

"Colonel John Biddulph writes from Gilgit:—"On July 28th I had a nest brought me which my shikari had been watching several days. He shot one of the pair of old birds about the nest, which turned out to be the male of *M. pusilla*. The nest contained three eggs, perfectly fresh (and the number was apparently not complete). In colour a dull stone-white, with small red-brown spots dotted about the larger end. The nest was about 20 feet from the ground, in a cedar tree (*Juniperus excelsa*), neatly made of grass-fibres, and lined thickly with sheep's wool, and matted on the outside with soft bits of decayed wood so as to look like bark of a tree."

"Major Wardlaw Ramsay says, writing of Afghanistan:—"Plentiful in the Hariab district, and remained in flocks until the early part of June, when they commenced to breed. I found a nest on the Peiwar range, which was placed near the extremity of a dead branch about 4ft. from the ground; it was composed of dried weeds and strips of bark, and lined with feathers and goats' hair. Only one egg was in the nest, of a delicate bluish white, speckled at the thicker end with minute reddish-brown spots."

"An egg of this species, procured in Gilgit, is a regular oval, slightly pointed towards the lesser end; the shell is very thin and fine, but has almost no gloss. The ground-colour is a delicate bluish-white, and the markings, which are gathered in a zone round the large end, consist of a few blackish spots and a number of specks and streaks of reddish brown. The egg measures 0.65 by 0.49."

According to Russ this species was formerly imported by the dealer Stader of Moscow, and from him it reached the Berlin Aquarium, but since that time he says it has not appeared in the bird-market. In 1903 two examples reached the London Zoological Gardens.

ALARIO FINCH (*Alario alario*).

Head all round black with a white collar passing round sides and back of neck; back, rump, upper tail-coverts, tail, wing-coverts, outer webs of tertials, edges and tips of secondaries chestnut red; remainder of wing black; throat and centre of fore-chest black, continuous with a stripe formed by subterminal black bars on many of the inner feathers of the sides and flanks (varying in extent in different individuals); the tips of these feathers and the central feathers of the hind part of the breast and of the abdomen slightly washed with buff or strongly with cinnamon; under tail-coverts either white or cinnamon; primaries below silky grey-black; secondaries similar, but with pale chocolate tips; tail below also chocolate, axillaries and under wing-coverts similarly coloured, the front border of wing black; beak greyish horn-colour, paler on lower mandible; feet slate-grey; irides brown. Female altogether paler and greyer; the top of the head grey-brownish, with indistinct dusky centres to feathers, the forehead washed with rufous; all the deep chestnut of the upper

parts replaced by pale brownish coffee-colour, very pale, but less brown on rump; upper tail-coverts and tail clear coffee-reddish; the rectrices with more or less broad black shaft-streaks; a little black on cheeks and back of ear-coverts, otherwise the sides of face and ear-coverts are brownish-grey; throat and breast greyish-white, mottled, excepting at the sides, with black; remainder of body below dull white, broadly washed on sides and flanks with sandy buffish; under surface of flights deep silky grey; under wing-coverts and axillaries slightly rufescent; under tail-feathers paler than above. Habitat, Cape Colony, the Transvaal, and Great Namaqua Land.

Whether the imported specimens of this species belong to two more or less defined races or not I cannot say, but it is certain that the two male skins which I have considered good enough to preserve differ remarkably in size, and not a little in colouring. I understand that Dr. Sharpe recognises two species of Alario Finches, but I find no note of the fact in Shelley's "Birds of Africa," Vol. III.; therefore it would seem that they must have been separated since 1902.

Messrs. Stark and Selater thus describe the habits of the Alario Finch:—"These pretty little Finches are of gentle and confiding habits, and when feeding allow a very close approach without showing any symptoms of alarm. They are fond of perching on low bushes, but

and remain in the nest for about three weeks. They are fed on partly-digested food from the crops of the old birds for some time after they leave the nest. Two broods are reared in the season, the first laying being in November, the second in January."

Not only is the natural song of this species especially sweet, but its imitative faculty is considerable; my two males having picked up the song of the Canary and the Linnet respectively. In addition to its merits as a vocalist, the Alario Finch is a long liver and very hardy. I certainly lost my first pair rather soon, the cock having broken his skull by flying about recklessly in the dark, whilst the hen caught cold and died in about eighteen months. But a second cock bird, purchased when the first was yet living, was in my possession over eight years; and a third which was given to me also lived a good many years. Males produced from an Alario cock bird with a hen Canary nearly resemble their South African parent, the colouring of whose plumage reminds one of a Three-coloured Mannikin in the arrangement of its colours.

The name Mountain Canary adopted by Messrs. Stark and Selater is a translation of the Boer name (Berg-Canarie).

We next come to the ROSE-FINCHES and their allies, which lead naturally to the true Bullfinches.

SCARLET ROSE-FINCH (*Carpodacus erythrinus*).

The prevailing colour of this beautiful bird in summer is crimson, most brilliant on the head, hinder parts of back and rump, throat, and breast; the feathers of the upper back and mantle and the wing-coverts with dusky centres; the remaining wing-feathers and tail-feathers dark brown with more or less rose-tinted margins; the abdomen is bright rose, fading to buffish white on the under tail-coverts; beak and feet fleshy horn-brown; irides hazel. Female generally brown, darkest on the crown, nape, wings, tail, throat, and breast; feathers of the head with dark centres; back and rump slightly olivaceous; tips of wing-coverts, margins of innermost secondaries and of throat and breast-feathers, with remainder of under surface paler. Habitat, Northern Europe and Siberia to Kamtschatka, wintering to the south, particularly in India and Burma. Accidental in Western Europe.

Two examples of this species have been captured in England, but it is quite possible that they may have been escaped cage-birds.

Jerdon ("Birds of India," Vol. II., p. 399) says:—"It visits the plains during October, and leaves in April. In March many are taken in fine breeding livery. In the extreme south I have chiefly seen it in bamboo jungle, feeding on the seeds of bamboo on several occasions, and so much is this its habit that the Telugu name signifies 'Bamboo Sparrow.' In other parts of the country it frequents alike groves, gardens, and jungles, feeding on various seeds and grain; also not unfrequently on flower buds and young leaves. Adams states that in Cashmere it feeds much on the seeds of a cultivated vetch. Now and then it is seen in large flocks, but in general it associates in small parties. It breeds in Northern Asia. It is frequently caught and caged, and has rather a pleasing song. Blyth says: 'The *Tuti* has a feeble twittering song, but soft and pleasing, being intermediate to that of the Goldfinch, and that of the small Redpoll Linnet; the call-note resembling that of a Canary-bird.'

Sechohm says ("Hist. British Birds," Vol. II., p. 48): "The food of this bird consists of seeds of various kinds, grain, and the buds of trees. In spring it eats insects, and in autumn, berries and other fruit."

"The rest of the Scarlet Rose-Finch is built in the



THE ALARIO FINCH.

obtain the greater part of their food, consisting of grass and other small seeds, from the ground, where they often intermingle with the flocks of Waxbills and other small Weaver Finches. The males frequently utter their low but sweet song from the top of a bush, chiefly in the spring, but, according to Dr. Russ, it is, in caged birds, continued the whole year.* He describes it as being soft, flute-like, but low-pitched. In Great Namaqua Land Andersson found the Mountain Canary always in the neighbourhood of water. Rickard remarks:—"I fancy this is the species much prized by the lads in Port Elizabeth, who called it the 'Namaqua'; it only appears at long intervals, but in considerable numbers when it does occur; it sings well and becomes very tame."

"In confinement this species breeds both with the Cape and the Common Canary. In a wild state it builds a small and neatly-constructed cup-shaped nest in a low bush of dry grass and small stalks, lined with fine grass and the down of plants. The eggs, three to five in number, are pale bluish-green, spotted at the large end with several shades of reddish brown. They average 0.68 by 0.50. The young are hatched in eleven days,

* The various notes respecting the writings of Russ in "The Birds of South Africa" are taken from my "Foreign Finches in Captivity."—A. G. B.

fork of a small bush, or amongst climbing plants not far from the ground. It bears little resemblance to the nest of a Finch, and might easily be mistaken for that of a Warbler. It is composed of dry grass-stalks, and lined with horse-hair. It is rather deep, and very neatly and carefully made, although it is so slender as to be semi-transparent when held up to the light. The inside diameter is two inches and a quarter. Five is the usual number of eggs, but sometimes only four are laid, and occasionally as many as six. They vary in length from .9 to .73, and in breadth from .63 to .55. The ground colour is greenish blue, not so pale as that of the eggs of the Bullfinch; the spots are also fewer, smaller, and blacker than in typical eggs of the latter species. They are smaller than the eggs of the Bullfinch, and are not likely to be mistaken for the eggs of any other bird."

My sister, the late Dr. Fanny Butler, brought me a fine male of this species from India, and I found it most confiding and gentle, but not especially attractive after its first moult in captivity as the whole of its rose-colouring was then replaced by dull yellow. I paired it to a hen Canary, but it was evidently not strong, as it never sang, and in the following winter it died. I fancy the most suitable seeds for the Rose-finches in captivity should be millet, canary, rice in the husk, and oats (and possibly sunflower-seed); also green food and small green caterpillars or blight.

SEPOY FINCH (*Carpodacus sipani*).

Brilliant scarlet; wings and tail dark brown more or less margined with scarlet; thighs deep brown; under tail-coverts with black bases to the feathers; beak yellow; feet flesh-brown, irides brown. Female, dark brown, the feathers with olive-yellow margins; rump bright yellow; below pale olive-yellow, with dusky centres to feathers; the throat somewhat ashy; lower abdomen and under tail-coverts white; thighs dusky; flights dusky with ashy inner margins. Habitat, Central and Eastern Himalayas.

Jerdon says of this species ("Birds of India," Vol. II., p. 395):—"It is by no means rare about Darjeeling, and haunts elevations from 5,000 to 10,000 feet, according to the season. I have generally seen it in pairs. It frequents both forest and bushy-ground, feeds on fruits and seeds of various kinds, and has a loud whistling note."

The above is all the information I have been able to discover respecting the wild life.

The Zoological Society of London secured a specimen of this Finch in June, 1902, and I believe it has on one or two occasions been exhibited at shows. The fact that these Rose-finches lose their beauty in captivity rather militates against their frequent importation.

PURPLE ROSE-FINCH (*Carpodacus purpureus*).

Above vinous; upper back and lesser wing-coverts with blackish centres; lower back and rump bright rose-red; upper tail-coverts somewhat ashy; wing dark-brown, the feathers mostly more or less margined with rose; the greater coverts and secondaries whitish at or near the tips; tail-feathers similar to primaries; crown and nape bright crimson, paler at sides, faintly indicating an eyebrow streak; lores and orbital feathers ashy; sides of face otherwise, throat and breast, crimson; breast paler becoming white on the abdomen, but rosy on sides; flanks also rosy with an ashy tinge and dark brown streaks; thighs greyish brown; under tail-coverts, under wing-coverts, and axillaries white washed with rose; flights dusky with ashy inner margins. Female above brown with darker streaks

more or less edged with whitish; wing-feathers mostly dark brown with paler margins; tail feathers dark brown with whitish margins; lores whitish; a narrow white eyebrow-streak; ear-coverts with pale centre; cheeks and under-surface white spotted with brown, more streak-like on sides and flanks; under wing-coverts buffish white; flights dusky with whitish inner edges. Habitat, "Eastern North America from the Atlantic coast to the plains, breeding from the Middle States northward" (Sharpe).

J. G. Cooper (Geol. Surv. Calif., "Ornithology," Vol. I., p. 155) says that the nest of "*C. purpureus* of the Eastern States is built in a low tree, composed of coarse grass, lined with root fibres, and the eggs, five in number, are of a rather pale green, with scattered dots and streaks of dark brown or dull purple.

"The song of this bird (the race *C. californicus*) is quite loud and varied, often resembling that of different birds, such as *Vireos* and *Dendroica*s, for which I have mistaken it. This would doubtless succeed as well in a cage as the other species, but I have not seen any in captivity, though the Eastern species is often sold in cages by the name of Linnets. Their food consists of all such seeds and berries as they can obtain, besides buds of trees in times of scarcity."

An example of this Finch was sent to me in July, 1896, by Mr. James H. Fleming, of Ontario, in company with some Pine Grosbeaks, by which large birds it had been so maltreated on the voyage, that it did not long survive its separation from them. Russ speaks of it as being imported singly by Reiche and Miss Hagenbeck, and being an admirable songster and pleasing cage-bird, but he says that, unhappily, it has not hitherto been bred.

BLOOD-STAINED FINCH (*Carpodacus mexicanus*).

Above ashy brown; the centres of feathers of mantle, upper back, and upper tail-coverts dusky; forehead and a streak above ear-coverts, lower back and rump crimson; wing-feathers dark brown with sandy buffish margins; tail-feathers dark brown with white-brown margins; front of face, cheeks and throat crimson; sides of neck ashy-brown; under surface of body ashy streaked with dark brown, abdomen paler; sides and flanks sandy buff streaked with dusky; under wing-coverts and axillaries buffish with a tinge of reddish; flights below dusky with the inner margins ashy. Female browner, the margins of the wing and tail-feathers pale brown; no crimson in the plumage; the crown with dark mottling; sides of face ashy-whitish; ear-coverts dark brown; under surface of body whiter than in the male, the abdomen uniform whitish with the sides and flanks streaked like the breast; under tail-coverts fulvous with dusky centres; under wing-coverts and axillaries sandy buff; flights as in male. Habitat, Mexico (Sharpe).

As Professor Ridgway regards the species described by Cooper as *C. frontalis* ("Orn. Cal. 1870," p. 156) as in part referable to this bird, I will quote what is there stated respecting the habits of the Californian bird:—"This lively and musical little bird abounds in nearly all the southern portions of California, and, according to Newberry, throughout the valleys northward up to Oregon. It is everywhere the species most peculiar to the valleys, while the other two frequent the forest-clad mountains.

"I have found this species on the barren rocky hills near the Colorado, and in plains near the coast, where there is no plant higher than the wild mustard, on the seeds of which it feeds. It frequents groves also, and open forests on the summit of the coast ranges in

small numbers, in company with *C. californicus*, and at times feeds on buds of trees, and seeds of the cotton-wood and other plants.

"It is principally abundant about ranches and gardens, where it does much mischief by destroying seeds and young plants, fruit, etc., for which depredations even its cheerful and constant song does not compensate, and the angry gardener wages unrelenting war against the race.

"At San Diego they build as early as the 15th of March, or perhaps even earlier. The situation and materials of their nest are exceedingly variable. I have found them in trees, on logs and rocks, the top rail of a picket-fence, inside a window-shutter, in the holes of walls, under tile or thatch roofs, in haystacks and barns, in the interstices between the sticks of a Hawk's nest, and in an old nest of the Oriole. About houses they always seek the protection of man, as if quite unconscious of having made him their enemy. Heermann mentions also, as locations of nests, the thorny cactus and deserted Woodpecker's holes. The materials are usually coarse grass or weeds, with a lining of hair and fine roots. The eggs, from four to six, are bluish-white, with spots and lines of black, chiefly towards the larger end. They measure 0.78 by 0.56 inch.

"The songs of this species differ very much from those of the others. They are very lively and varied, though short, and are heard throughout the year. Cage-birds, usually called 'California Linnets,' are easily kept and frequently to be seen, but generally their purple changes to yellow after long confinement.

"They raise two, if not three, broods annually. These assemble in large flocks in autumn, but migrate very little if any to the south.

"The House-Finch of California is represented in Mexico by a closely-allied species, if not a mere variety."

Ridgway says ("Birds of North and Middle America," Vol. I., p. 124):—"The habits of *C. mexicanus* are exceedingly different from those of *C. purpureus* and *C. cassinii*, resembling very closely those of the House Sparrow (*Passer domesticus*) in nearly every respect."

This species has appeared more than once at the London Zoological Gardens, but Dr. Russ appears to have overlooked that fact.

I do not think there would be any advantage in including the White-winged Crossbill of N. America in this review of imported cage-birds, since not only is it regarded by Dr. Sharpe as a mere sub-species of the European *Loxia bifasciata*, but under the present stringent laws enforced in the United States it is by no means likely to become well known here as a cage-bird. It has been exhibited in our Gardens.

JAPANESE BULLFINCH (*Pyrrhula griseiventris*).

Very like the European Bullfinch, excepting that the breast, abdomen, and flanks are grey, sometimes with a rosy tinge, instead of bright salmon-red. The female above is chocolate-brown, with black crown and white rump, below chocolate brown, whitish on lower abdomen and vent and white on under tail-coverts. Habitat, Japan, the island of Askold, Pekin, the valley of the Ussuri, and an island in the Bay of Okhotsk.

Seebohm gives no information respecting the habits of this Bullfinch in his "Birds of the Japanese Empire." It was exhibited at the London Zoological Gardens in 1903, when three specimens were obtained.

PINE GROSBREAK (*Pinicola enucleator*).

Rosy vinaceous, with bluish ashy bases to the feathers; feathers of the upper parts mottled with dusky, which increases on the back until it forms large subterminal triangular brown patches, the vinous colouring being

then limited to the end of each feather; rump clear vinous-rose, almost immaculate, but upper tail-coverts more like the feathers of the back; wing and tail feathers dark brown, outermost lesser, and median coverts broadly tipped with pinky white; greater coverts and inner secondaries broadly tipped and partly bordered externally with white; remaining flights and tail-feathers with narrow paler edges, whitish on distal fringe; sides of head vinous rose-colour; the lores and orbital region dusky greyish; under parts dull vinous, the feathers grey at base and with dusky V-shaped subterminal markings; hinder breast and abdomen (excepting the centre and flanks) washed with bright rosy-vinaceous; remainder of body below ashy grey; under parts of wing and tail dusky greyish; front of wing narrowly barred with pink and dusky; under wing-coverts and axillaries whitish ash; beak and feet black; irides hazel. Female with all the vinaceous and rose-colour replaced by cupreous bronze, more coppery on the crown, slightly olive-tinted on the back and more golden on the rump and upper tail-coverts; hardly a trace of the mottling and triangular marking of the cock bird; under parts of a paler and less bluish ash-colour. Habitat, Northern Europe and America.

A few examples of the Old World type of this species have been obtained in the British Islands, but it is more than likely that they were all escaped or liberated birds, since the first moult in captivity replaces all the charming rosy-vinaceous colouring of the cock by a dull brassy buffish yellow.

The following I quote from an article, illustrated by a beautiful coloured plate of both sexes, which I published in the *Avicultural Magazine*, 1st ser., Vol. III., 1896, pp. 1-5:—"The nest of the Pine Grosbeak is usually placed on a thick branch of spruce-fir, or birch, close to the main stem and at a distance of from ten to twelve feet from the ground; it is somewhat like a large edition of that of the Bullfinch, the outer framework consisting of slender twigs of fir and the inside of fine grass bents, roots, and hair-lichen. The eggs number from three to four, of a pale turquoise blue colour, with deep purplish-brown or blackish spots, and greyer brown shell-spots; they vary much in the same manner as eggs of the Bullfinch.

"During the winter months this species is gregarious in its habits, and is so tame that it is easily caught or shot, but in the summer the flocks break up for breeding purposes and the birds are then somewhat more shy, though never so much as our Bullfinch.

"The song in the wild bird is said to be very melodious and flute-like, the flight powerful and undulating. It is a true bird of the woods and a somewhat late breeder; it feeds on seeds of conifers, berries, and buds, as well as insects and their larvæ, and earthworms.

"About July 20th I received a letter from Mr. James H. Fleming, of Ontario, in which he informed me that he was sending off a box containing six Pine Grosbeaks and a Purple Finch, under the care of Mr. J. B. Williams (Curator of the Montreal Natural History Society). I received this kind present on July 23rd; all the birds reaching me alive, though very dirty and a good deal the worse for quarrelling during their fortnight of close confinement.

"I turned the Pine Grosbeaks out into my garden aviary,* giving them a seed-mixture, consisting of sunflower, hemp, oats, canary and millet. I found that they ate these seeds in the order given above, beginning with the sunflower; they did not seem to care about the

* I only had one at that time, and it was much smaller than it now is.

collet. During the first two or three days they washed almost incessantly, so that whenever I looked at them I was sure to see one or two bedraggled-looking, soaked individuals.

"By the end of the first week my birds were clean, though ragged, and five of them appeared to be in excellent health. Seeing them eating worms which had crawled from below their water-pan, I dug some up and offered them; they seemed much pleased and quarrelled for them. I also found that they were very glad to get caterpillars and spiders.

"Shortly afterwards, Mr. Williams called upon me, and seemed gratified to find the Grosbeaks well and contented. In the course of conversation, he unfortunately told me that, in Canada, the favourite food of the Pine Grosbeak consisted of berries of the mountain ash. Next morning, I put a bunch of these berries into the aviary, and two of the birds immediately flew down and devoured them. By the evening both birds were staggering about as if frightfully drunk; when they flew towards a perch they missed it and fell heavily to the ground. If I entered the aviary they seemed scared almost out of their wits, although naturally they are the tamest and most gentle birds I ever had, utterly devoid of fear; now they dashed wildly and blindly against the wires, fell to the ground, staggered up and flew off again madly; they had constant diarrhoea, were unable to see their seed, tumbled into the water, had fits every few minutes, and after two or three days of misery died. It is, therefore, clear that berries of the mountain ash are deadly poison to captive Pine Grosbeaks.

"With August, came heavy and almost incessant rains, and this did not seem to suit my Canadian birds, so that by the end of the month a third had died in a rapid decline; it was a young male in hen plumage."

My birds completed their moult in September, when a young male died and was stripped of feathers by the survivors; later on they also died, from which I concluded that our climate was too wet for Canadian birds.

The Pine Grosbeak is, without exception, the tamest and most confiding of all the Finches; if you hold out your finger to him he will touch it with his tongue but never bite, though, with his formidable beak he could give one a very unpleasant nip if he chose. If my birds got a sunflower seed jammed in the upper mandible, they would let me hook it out with a finger-nail. With plenty of space their disputes with one another consist, like those of our Bullfinch, in making grimaces. The call-note is *cer, cer*, and they use it when running along the side of the aviary, following their master and asking him for a dainty. They look like Bullfinches, but are as large as Blackbirds.

Mr. W. H. St. Quintin bred the Pine Grosbeak in one of his aviaries in 1906 (vide *Avicultural Magazine*, n.s., Vol. IV., p. 285). I do not know whether his were European or American birds.

Dr. Russ speaks of the price of this species in Germany as extremely variable; he says that Gleitzmann would not part with a pair for less than 24 to 30 marks, whilst Fürstenburg offered the beautiful red male for 9 marks, the orange-coloured male for 5 marks, and the female for 1 mark. I have never seen them offered for sale in the London market.

LONG-TAILED ROSE-FINCH (*Uragus lepidus*).

"General colour above brown, the feathers of the back and mantle broadly centred with black, and washed with dark crimson; lower back and rump uniform deep rosy; lesser wing-coverts dark rosy, the feathers with blackish bases; median and greater

coverts blackish, edged with ashy and broadly tipped with creamy white, forming a dark wing-bar; bastard-wing, primary-coverts, and quills dark brown, edged with lighter brown, more ashy on the primaries; inner secondaries broadly edged with ashy white on the outer web; upper tail-coverts dark ashy; tail-feathers blackish, edged with ashy, the two outer feathers white for the most part, except for an oblique blackish mark along the inner web and along the outer web, the external feather white along the outer web, with a blackish shaft; crown of head ashy brown with a slight rosy tinge, all the feathers mottled with dusky centres; fore part of the head silvery white with a rosy tinge, the feathers slightly mottled with dusky spots; lores and base of forehead dark crimson; eyebrow silvery white, continued from the frontal band; sides of face, ear-coverts, cheeks, and throat silvery whitish with a rosy tinge, somewhat lanceolate on the throat; sides of neck ashy grey, mixed with rosy spots; fore neck and breast deep rose-colour, the abdomen dull whitish; sides of body and flanks sandy brown, streaked with dark brown; thighs ashy brown; under tail-coverts whitish, tinged with rosy; under wing-coverts ashy whitish, washed with rosy; axillaries white; quills below dusky, ashy whitish along the inner edge. Total length 5.8 inches, culmen 0.35, wing 2.6, tail 2.4, tarsus 0.6 (*Mus. Paris*).

"The female represents that of *U. sanguinolentus*, but is more ashy and has none of the tawny tinge on the lower back and rump which is seen on the last-named species; the sides of the body and flanks are also brown, streaked with blackish brown, more coarsely than in *U. sanguinolentus*. Total length 5.5 inches, culmen 0.35, wing 2.55, tail 2.65, tarsus 0.65. (*Mus. Paris*)."—Sharpe. Habitat, China.

The preceding description was made by Dr. Sharpe from the type specimens in the Paris Museum, there being at the time no examples in the British Museum collection; but it is just these rare birds that are sometimes dropped upon in numbers by trappers, so that they become familiar objects in aviaries before they are even represented in many collections of skins; the Yellow-rumped Finch (*Munia flaviprymna*) is an instance of this. Dr. Hartert evidently regards *Uragus lepidus* as a subspecies of *U. sibiricus*, but I have not come across any notes on the wild life of either. A specimen reached the London Zoological Gardens in 1903.

This concludes the typical Finches. I shall next proceed to describe the imported species of Buntings.

CHAPTER X.

BUNTINGS (*Emberizinae*).

In captivity the species of *Emberiza* should be fed in the same manner as the Chaffinches.

THE GREY-HEADED BUNTING (*Emberiza fucata*).

General colour above deep red-brown streaked with black, excepting on the rump, which is uniform; head and neck slate-grey; upper tail-coverts pale brown centred with blackish; wings and tail dark brown with broad fawn-coloured borders to the feathers; outer tail-feathers partly white on inner web; lores, eyelid, and a narrow ill-defined line over eye white; ear-coverts chestnut, with a small white spot on hinder margin; a larger white spot on the sides of the neck; throat white; a narrow black moustachial streak joining a black gorget

across lower throat; this is followed by a broad band of greyish white and then a fairly broad band of red-brown across the chest; abdomen whitish, washed on the flanks with ochreous; beak reddish-brown, lower mandible fleshy at base; feet fleshy-buff; irides dark brown. Female rather smaller; generally duller and less distinctly marked; throat buff, the black gorget broken up, as also the red-brown chestband. Habitat, Japan, Eastern Siberia, and North China; wintering in South China, Burma, and the plains of India, resident in the North-west Himalayas.

According to Blakiston and Pryer (*The Ibis*, 1878, p. 242), "the Grey-headed Bunting is a common visitor to the plains near Yokohama, retiring to the mountains and to Yezzo to breed."

Jerdon ("Birds of India," Vol. II., p. 376), says: "I have seen it at Jalna in the Deccan, at Mhow and Saugor, and also near Nagpore. In most of these cases it was frequenting rocky and bushy hills in small parties; and I occasionally saw it in the fields, near hedges and trees." Swinhoe records it as "frequenting standing cornfields in China." Hume ("Nests and Eggs of Indian Birds," Vol. II., pp. 166-167) tells us that "the Grey-headed Bunting breeds throughout the valleys of the Suttlej and Beas, and the hills westwards of this to Hazara, at elevations of from 6,000 to 8,000 feet."

"It lays from the middle of May to the middle of July, so far as I yet know, and very possibly both earlier and later."

"The nest is usually placed on the ground, at the root of some little dense tuft of grass or stunted bush, or under some large stone well concealed by the surrounding herbage; but I have had one nest brought to me said to have been found in a bush nearly a cubit from the ground."

"The nest is saucer-shaped, or, perhaps I should rather say, shallow cup-shaped, composed almost entirely of dry grass, and lined with very fine grass-stems and a little hair. It is perhaps a neater and certainly a denser and heavier nest than that of *E. stracheyi*, but both are much the same size and very similar in other respects."

"Four seems to be the regular complement of eggs."

"The eggs of this species are by no means of the ordinary Bunting type. The only Bunting's egg of which I have seen a figure which they at all resemble is that given by Bree of the egg of the Black-headed Bunting (*Euspiza melanocephala*). Like the eggs of *Melophus melanicterus*, there is something of a Pipit and Lark-like character about them. In shape they are long regular ovals, somewhat pointed towards the small end. The ground-colour is a very pale greenish grey or white tinged with greenish grey, and they are speckled and freckled pretty well all over, but far more densely at the large end, where there is an irregular mottled cap or zone, with dull, rather pale, somewhat reddish or purplish brown. They have little or no gloss, and in shape are more elongated and oval than those of *E. stracheyi*. In length the eggs vary from 0.76 to 0.91, and in breadth from 0.57 to 0.62."

Russ seems only to have been aware that this bird was occasionally offered for sale at Calcutta; it has, however, been exhibited at the London Zoological Gardens.

YELLOW-BROWED BUNTING (*Emberiza elegans*).*

Mantle, scapulars, and upper back chestnut brown streaked with black and with buffish-white borders; lower back, rump, and upper tail-coverts ash-grey; the

latter with a tinge of chestnut; lesser wing-coverts ash-grey; median and greater coverts blackish, tipped with buff and whitish, forming two wing-bars; flights dull brown, with greyer borders; secondaries and greater coverts pale rufous externally; tail blackish, the central feathers ashy, the others with ashy brown edges, excepting the outermost feather, which is white with a black marking at base of inner web and a dusky marking near tip of outer web; penultimate feather also with a long white patch on inner web; crown and nape black divided by a pale yellow stripe which begins above the eye and bounds the back of head, at the other extremity it passes above the lores and across the forehead as a narrow white band; base of forehead and sides of head black; a white band above the ear-coverts; back and sides of neck ash-grey dotted with black; throat bright yellow; base of chin crossed by a narrow black line, a large triangular black gorget separated by a white band from the yellow throat; remainder of body below white, the sides streaked with rust-reddish, more broadly on the flanks, which are streaked in the centre with black; flights below dusky, ashy whitish along inner web; beak black; feet flesh-coloured; irides brown. Female smaller and much duller; the ashy colouring on hind-neck or lower back replaced by chestnut, streaked and bordered like the upper back; crown also chestnut with black bases to the feathers; ear-coverts darker; yellow encircling stripe on head, cheeks and throat less distinct, more orange in tint, and duller; body below dull white, with ill-defined black gorget. Habitat, "possibly a resident in Japan, but to Manchuria and the valley of the Amoor it is only a summer visitor, wintering in China." (Seebohm.)

Mr. F. W. Styan on "The Birds of the Lower Yangtse Basin" (*The Ibis*, 1891, p. 355) says, "Not uncommon in winter on hillsides, frequenting bamboo-clumps and the rough brambly scrub around farm-clearings. A sweet songster. Breeds at Ichang on the Upper Yangtse."

Seebohm (*The Ibis*, 1892, p. 94) says, "Mr. Holst describes the irides as brown, the bill as dusky grey shading into greyish yellow towards the base of the under mandible, and the feet as reddish yellow." Surely this would be the winter colouring?

Mr. F. W. Styan on "Birds from West China" (*The Ibis*, 1899, p. 297) observes that this species was "found by Père David at Moupin. Seems to be a common breeder in Sechuen."

Captain H. A. Walton (*The Ibis*, 1903, p. 28) says, "A few examples of this species were brought to me by a bird-catcher at the end of May. I did not see it wild myself."

Mr. J. D. D. La Touche in his "Field-Notes on the Birds of Chinkiang" (*The Ibis*, 1906, p. 635) only tells us that this is "a common winter bird. It leaves about the beginning of April."

So, although this species is resident in Japan, breeds at Ichang, and is a common breeder in Sechuen, I have been unable to discover any published account of the nidification.

Dr. Russ includes this species in his book, because it is said to be a favorite cage-bird with the Japs on account of its song, and therefore he concludes that it will soon reach the European market; if, as I believe, the Yellow-browed Bunting (from Japan) in the Zoological Society's list is this species, it has appeared in our gardens more than once.

GOLDEN-BREASTED BUNTING (*Emberiza flaviventris*).

Above nape, upper back, and scapulars chestnut-red; lower back, rump, and upper tail-coverts ash-grey; the last-mentioned edged with white; lesser wing-

* In the Zoological Society's List the Yellow-browed Bunting stands under the name of *E. chrysophrys*, but is said to be from Japan, whereas *E. chrysophrys* is a Siberian bird; I conclude, therefore, that *E. elegans* is intended.

coverts also ash-grey; middle coverts white, black at base; greater coverts black edged with grey and tipped with white; flights black edged with white excepting the inner secondaries which are edged with chestnut; tail-feathers black edged with grey, the four outermost tipped with white, the outermost of all with white web and a black spot; head black, with a mesial streak on the crown, the lores, and an eyebrow-stripe, a stripe below the eye across the ear-coverts, a patch on sides of neck, and the chin white; remainder of under surface yellow, the chest inclining to orange; sides and thighs grey; flanks, under wing-coverts, axillaries, inner margins of flights and under tail-coverts white; upper mandible black, lower mandible brown; feet dusky flesh-colour; irides brown. Female with the chestnut of the upper parts deeper and streaked with black. Habitat, South Africa from Cape Colony north-eastward to Nyasaland and German East Africa.

Messrs. Stark and Sclater ("Birds of South Africa," Vol. I., p. 185) give the following account of the habits of this Bunting: "These handsomely marked little Buntings are usually met with during summer and winter in small flocks of ten or a dozen. They are extremely tame and fearless in their habits, like all the South African Buntings I have met with, feed much on the ground in open bush country, but are sometimes found in thickly wooded localities, and if disturbed only fly for a few yards before settling again on the ground. Only occasionally do they perch on low bushes or trees, much oftener on stones or rocks. They feed largely upon insects, especially upon small beetles, less frequently upon seeds. In spring the brilliant cocks sing their simple Bunting-like notes from the summit of low bushes or stones, a monotonous and oft-repeated 'zizi-zizi-zee,' with the stress on the last syllable. About the middle of October the female proceeds to build her nest of dry grass-stalks, lined with finer grass and hair, in a low bush at the foot of a rock, or among the roots of herbage on a ledge, and towards the beginning of November lays four or five eggs.

"These are smaller than those of the Cape Bunting (*Fringillaria capensis*), and differ completely in colour. They are white, thickly marked all over with scrawls and hair-like zig-zag lines of very dark purplish-brown or black. They measure 0.75 by 0.58."

Captain Horsburgh presented an example of this pretty Bunting to the London Zoological Gardens in August, 1906; by some *lapsus calami* it is entered in the Report of the Society and in the Journal of the S.A.O.U. as "Gold-crested Bunting."

RED-HEADED BUNTING (*Emberiza luteola*).

Scapulars and upper back olive-yellow with black streaks; lower back and rump yellow, the latter tinged with chestnut; upper tail-coverts dark brown washed with yellow; wing and tail feathers dark brown edged with white-brown; head, neck, and breast rich chestnut; remainder of body below rich yellow; beak bluish-grey, dusky at tip of upper mandible; feet fleshy-brown; irides brown. Female above pale ashy-brown streaked with blackish; lower back and rump without streaks, the rump with a yellow tinge; lores and feathers round eye whitish; ear-coverts pale brown; cheeks and under surface sandy grey, the abdomen and sides of breast faintly washed and the under tail-coverts strongly, with yellow. Habitat, Siberia and Central Asia, southward to Persia, Afghanistan, and India.

Jerdon ("Birds of India," Vol. II., p. 379) observes: "This Bunting prefers cultivated land, with bush jungle

near, to which it can retreat during the middle of the day, and it is also frequently seen about hedges.

"It appears to breed in Afghanistan, for Hutton says it arrives at Candahar the beginning of April, and departs in autumn. Adams states that it has a sweet and melodious song."

The following I quote from Hume's "Nests and Eggs of Indian Birds," 2nd edition, Vol. II., p. 170:—"Major Wardlaw Ramsay says: 'I cannot find any account of the nidification of this Bunting, which breeds so plentifully in the Hariab valley. The first nest found was on June 19th, and I was somewhat surprised that neither nest nor eggs were at all like those of other Buntings. The nest in question was built in a small bush about 2½ feet from the ground; it was cup-shaped, and composed of dried grass, stalks of plants, shreds of juniper bark, and lined with a few goat's hairs. It contained four eggs, of a pale bluish-white colour, finely spotted with purplish stone-colour, the spots becoming larger at the thicker end. The eggs not having arrived from India, I cannot give their exact dimensions.'

"And Dr. Scully, years ago, recorded the following note on the breeding of *E. luteola* in Turkestan:—'At least half a dozen nests of this species were seen in May and June. The nest is usually placed either in small bushes about a couple of feet above the ground, or touching the ground at the edges of cornfields and sheltered over by a small shrub. The nest is round, from 4.5 to 5.5 inches in diameter, the side-wall about 1 inch thick, the bottom 1.5. Externally it is made of coarse fibres, leaves, and twigs loosely put together; but the egg-cavity is lined with fine fibres wound round and round, the eggs commonly lying on a bottom-lining of horsehair.'

This species has frequently been imported and a good many examples have, from time to time, been exhibited at the London Zoological Gardens."

YELLOW-BREADED BUNTING (*Emberiza aureola*).

Above deep maroon; the mantle and back with feathers blackish in centre and with paler sandy margins in winter; lesser coverts similar; median coverts white; greater coverts maroon with black bases and white tips; remainder of wing dark brown, the secondaries maroon, the flights with whitish margins; upper tail-coverts brown, tinted with maroon and edged with ashy; tail similar, but without the maroon tint, the two outer feathers with a broad oblique white patch occupying most of the feather, the next pair with a narrow patch on the inner-web close to the shaft; crown-of head uniform maroon with a black frontal band; the eyebrow, sides of face, ear-coverts and upper throat are also black (in winter the throat becomes yellow); lower throat yellow succeeded by a dark maroon collar; the remainder of body below yellow, becoming white on the vent and under tail-coverts; the sides of upper breast streaked with chestnut, of the lower breast and abdomen with brown; under wing-coverts white; axillaries pale yellow; flights dusky whitish along inner web; upper mandible dark horn-brown; lower mandible and feet pale fleshy horn-colour; irides wood-brown. Female above brown streaked with black; eyebrow and under parts fulvous yellow, paler on posterior part of body to dull white, sides of body pale brownish, streaked with blackish; axillaries pale brownish. Habitat, North and South Europe and Siberia, Yesso and North China; wintering

* A dead example sent to me for identification in 1905 was supposed to have been caught near Dover in 1900.

in Burma and southward in the Malay peninsula to Yohore.*

All that Jerdon tells us of the wild life of this Bunting is that "Surinhoe found it in China in flocks, in autumn, feeding on the ripening corn."

Mr. F. W. Styan, writing on the birds of the Lower Yangtse Basin (*The Ibis*, 1891, p. 355) says: "Appears in vast numbers in the middle of April and leaves again in May. They frequent the grassy plains and reed-beds on the marshy banks of the river. A clump of reeds with a hundred or so of these birds perched on them, their brilliant yellow breasts exposed to the sunshine, presents a very curious appearance. I do not think any remain to breed; but early in September flocks of young birds appear and frequent the paddy-fields till the end of October. Adults are much scarcer in the summer. This bird is the 'Rice-bird' of Canton residents, and, when caught in good condition is deservedly considered a luxury."

Mr. J. D. de la Touche (*The Ibis*, 1892, p. 428) remarks that this Bunting is "very abundant at Foochow in the paddy fields during October. I believe that I saw one near Swatow in November."

Mr. W. Eagle Clarke (*The Ibis*, 1895, p. 184) speaks of meeting with *E. aureola* in the Rhone Valley, and in the following year Mr. Bidwell notes that the egg of the Cuckoo has been found in the nest of this species (of which I presume the nidification has been described in Dresser's "Birds of Europe").

Mr. H. L. Popham (*The Ibis*, 1898, p. 503) says: "Yellow-breasted Buntings were very numerous around Yeniseisk. They arrived nearly a fortnight later than the Yellow Buntings, and did not appear to be yet nesting when I left Yeniseisk on June 9th. The males were very tame, and sat singing their monotonous song everywhere; but it was not until some days later that I was able to procure a female."

In 1899 Michael Harms made a collection of birds on the river Dwina, near the confluence of the Sija, in 63° 37' N. lat. He says of *E. aureola*: "It inhabits the meadows on the banks of the Dwina, and has a short melodious song; its nests and eggs were taken." (*Cf. The Ibis*, 1900, p. 682.)

Capt. H. A. Walton (*The Ibis*, 1903) speaks of this bird as "common in the reed-beds up to the beginning of November. After that, it was absent from Peking until the middle of May, from which time it became plentiful, but only stayed for about a month."

In *The Ibis* for 1904, Dr. Hartert has published an illustration of the nest, and he tells us (pp. 442-443):—"Male and female take part in incubation. The male flew off one nest, fluttered about, and trailed his breast upon the ground within three or four yards of us, as if he had a broken wing. The nests are placed in heads of stumps as well as in low thick bushes very near to or upon the ground. The female is exceedingly shy, and will stop in an isolated bush almost until she is driven out. Eggs were fresh on June 18. A nest on the ground in the grass at Yakutsk on June 20 was photographed at 3.30 a.m. We got a third set of eggs on June 25. A further nest containing five hard-set eggs was found 28. vi. 1903, near Yakutsk." Neither nest or eggs are described.†

In 1904, Mr. Dresser visited Finland and Russia, and

* In 1890 Professor F. E. Blaauw recorded the capture of a specimen at Harderwijk, prov. Gelderland, which was the first specimen obtained in Holland (*cf. The Ibis*, 1891, p. 151); it was deposited in the Gardens at Amsterdam. An example was obtained in Norfolk in 1905.

† Dr. Russ quotes Taczanowski as giving a similarly incomplete account of the nidification of this bird, but he tells us that in June the female lays four to five, rarely six eggs.

purchased eggs of this species which doubtless he desired for illustration in his work on the eggs of European birds. Of course, a bird so well known as this, and one which, as Mr. Finn tells us, is to be obtained in the Calcutta bird market, has more than once appeared at our London Zoological Gardens. Dr. Russ says that it is the most abundantly imported of all the Buntings; he tells us also that the smaller dealers often obtain it from Russia. In 1877 the dealer Gleitzmann brought twenty-one (in a large consignment of birds from Moscow) to Berlin in order to forward them to London. The price, he says, varies from nine to twelve marks (shillings) for a pair.

RED-BACKED OR RUDDY BUNTING (*Emberiza rutila*).

Above deep chestnut, rump and upper tail-coverts slightly paler; wing-coverts with indications of olive-grey on the fringes at tips; wing and tail feathers dark brown with pale edges, the inner secondaries chestnut externally; two outer tail-feathers with a small whitish mark at end of outer web; sides of head, throat and fore-neck chestnut; rest of body below sulphur yellow, olive-greenish, streaked with blackish at sides; under wing-coverts and axillaries yellowish white, dusky at base; flights below dusky with ashy inner margins; beak brown; feet grey; irides red brown. Female above brown streaked with black, less distinctly on nape; upper tail-coverts paler, with ashy margins; wing-coverts blackish-brown, edged with greyish-olive and yellowish-white towards tips, wings and tail dark brown with pale borders, margins of secondaries reddish; lores, feathers encircling eye and an ill-defined eyebrow buffish; ear-coverts pale ashy-brown; a streak of black along the upper margin; cheeks and throat pale ochreous, separated by a black line; under surface pale sulphur yellow; a few dusky streaks on the breast; sides ashy-olive broadly streaked with black-brown. Habitat, Eastern Siberia and N. China, possibly Japan; wintering in South China, Cochinchina, Indo-Burma and S. Eastern Himalayas.

Mr. F. W. Styan (*The Ibis*, 1891, p. 355) says that this bird is rather scarce in the Lower Yangtse Basin, "but a few pass through in April and May." In the southern Shan States, Lieut.-Col. G. Rippon found it rather common (*The Ibis*, 1901, p. 546). Capt. H. A. Walton says (*The Ibis*, 1903, p. 28) that it arrived at Peking "about the middle of May. It has a single loud call-note." Lieut.-Col. Bingham obtained it in the southern Shan States at from 1,000 to 6,000 ft. elevation (*The Ibis*, 1903, p. 600). Mr. J. D. D. La Touche (*The Ibis*, 1906, p. 636), writing on the birds of Chinkiang, observes that it passes in May and October. "On May 5, 1901, I saw great numbers on the hills." Russ says that the habits and nidification are similar to those of *E. ptyornis*. It reached the London Zoological Gardens in 1873 and 1891.

MASKED BUNTING (*Emberiza personata*).

Above generally rusty red-brown with black streaks; the feathers of the mantle with paler somewhat ashy markings; lower back and rump olive brown with indications of dusky centres to the feathers; median and greater coverts dusky, slightly reddish, edged with pale olive-brown and tipped with white; remainder of wing dusky brown, the feathers with pale edges; upper tail-coverts and centre tail-feathers pale brown edged with buff, remainder blackish, similarly edged; the outermost feather with a large white patch and with base of outer web white; penultimate feather with a smaller white patch; head, nape and sides of neck dull grey-green; middle of head with fine blackish shaft-streaks; ill-defined eyebrow and broad moustachial stripes

yellow; face black, as also a row of spots separating the moustachial streak from the throat, and a spot on the chin; throat sulphur yellow finely streaked with dusky; remainder of body below clear yellow, yellowish-brown with dusky shaft-streaks at the sides; beak brownish-grey, lower mandible reddish at base; feet reddish-brown; irides brown. Female browner and less streaked, with less white on the tail; head and neck less green, the sides of crown somewhat reddish; lores and a well-defined eyebrow-stripe dull yellow; ear-coverts brown with yellow shaft-lines; under parts yellow, throat and chest with an olive wash and triangular dusky spots; breast and abdomen brighter; browner and streaked with black on flanks. Habitat, Japan and China.

Seebohm (*The Ibis*, 1893, p. 50) describes a male killed in the Ioo-Choo Islands on April 4 as having the irides light yellow; legs flesh colour; upper mandible brownish-black, with a light grey base; lower brownish, with a brownish-yellow base. This would seem to prove Russ' description of the soft parts (from which I quoted above) incorrect, but there is a good deal of seasonal change in the colouring in Buntings as with many other birds.

According to Yony (Proc. United States Nat. Mus., 1883, p. 298) this Bunting breeds abundantly on Fuji-yama. The nest is placed on the ground or in a tussock of grass, and is made of dried grass, lined with fine roots and horsehair. Seebohm ("Birds of the Japanese Empire," p. 136) describes the eggs as resembling richly marked samples of those of the Ortolan Bunting.

Russ says that in 1875 he received a male of this species with other Japanese birds from Jambach, which after its death he presented to the Zoological Museum of Berlin; he does not know whether other examples have been imported. Being a common Japanese bird, there can be little doubt of it, I should think.

BONAPARTE'S BUNTING (*Emberiza ciopsis*).

Above bright chestnut; mantle and upper back streaked with black, remainder of body above uniform chestnut; but the forehead and nape somewhat ashy; lesser wing-coverts slate grey; median and greater coverts chestnut, black at base and fulvous at tips; flights dusky brown with pale edges, the secondaries, however, with the edges bright chestnut; central tail-feathers similar; remaining feathers blackish with brown outer fringes; penultimate feather white-edged and with a large white patch near end of inner web; outermost feather mostly white: a broad white eyebrow-stripe from base of beak to nape, a second broad white stripe below the eye; sides of head otherwise black; sides of neck blue-grey, whitish behind the ear-coverts; throat white; remainder of body below more or less cinnamon; a black collar at back of throat; breast, flanks and under tail-coverts paler than throat, and abdomen buffish; under wing-coverts and axillaries white; flights below dusky, ashy along inner web; beak bluish horn-colour; feet brownish flesh-colour; irides dark hazel. Female paler and browner above with broader streaks on mantle and back; crown ashy in centre; ear-coverts chestnut instead of black; cheek-stripe duller black; under parts paler, the throat whitish. Habitat, Japan.

According to Seebohm this is the commonest of the Japanese Buntings. Jouy (Proc. United States Nat. Mus., 1883, p. 298) states that it breeds in great abundance on Fuji-yama, making a nest on or near the ground of dried grass and leaves, lined with fine rootlets. Seebohm ("Birds of the Japanese Empire," p. 132) says:—"Eggs in the Pryer collection closely resemble those of *Emberiza cia* and those of *Emberiza*

cioides, being scrawled all over the larger end with fine hair-like streaks."

This bird was purchased for the London Zoological Gardens in 1891, and doubtless must have been imported occasionally in consignments of Japanese birds; but Russ does little more than indicate the species in his big work.

WHITE-CROWNED OR PINE BUNTING (*Emberiza leucocephala*).

"Top of the head white in the male, greyish in the female; upper parts rufescent brown, with central dark brown streaks, nearly wanting on the back of the neck; rump and upper tail-coverts cinnamon-rufous, edged with pale brownish; wings and tail dusky brown, edged yellowish, and the two outer tail-feathers with a patch of white on the inner web, largest on the outer feathers; beneath the chin, throat, and a moustachial line are dark rufous, with pale edgings, and there is a triangular patch of white on the middle of the throat; ear-coverts pale brown; breast and sides of abdomen rufous, with pale edgings, and the middle of abdomen, of vent, and the lower tail-coverts white, with a few streaks. Length 6in. to 6½in."—Jerdon. Habitat, Siberia, extending eastward to the N.W. Himalayas in winter; occurs at Peking, and is accidental in Europe and Japan.* Severtzow says (*The Ibis*, 1883, p. 60): "A specimen of the Pine-Bunting was obtained out of a small flock in the Kysil-art gorge, which had lost its way, in October." "Pine-Bunting" is the name by which this species is known on the Continent, and Seebohm also uses it (*The Ibis*, 1889, p. 295).

This Bunting has hybridised with *E. citrinella* (cf. Mém. Acad. Imp. Sci., St. Petersb., ser. 7, XXXV., p. 5). One would think the hybrids must closely resemble *E. citrinella molessoni* (cf. *The Ibis*, 1901, Pl. X.): Mr. H. L. Popham, in the article on "The Birds of the Yenisei River, which accompanies this plate, observes of *E. leucocephala*:—"On this visit I was successful in procuring specimens of the Pine-Bunting at Yeniseisk, and in finding one nest, which was well concealed under dead grass in the midst of a thick clump of small bushes; it was composed of dry grass, lined with horse-hair, and contained four eggs on the point of hatching. The song is similar to that of *E. citrinella*."

Capt. H. A. Walton says (*The Ibis*, 1903, p. 28) in a paper on "The Birds of Peking:—"I saw a few small flocks of the Pine-Bunting, and shot some specimens, during very severe weather, at the end of February."

The habits of this Bunting are said closely to resemble those of the Yellowhammer; the nest is found at the edge of a wood or thicket, always in an open spot, on the earth, in a little depression under a shrub, the trunk of a tree, on fallen branches, or under a piece of bark; externally it is usually formed of coarse dead weeds, and internally is neatly lined with fine grass and horsehair. Four to six eggs are laid towards the end of May, which closely resemble those of the Yellowhammer, but are sometimes more variegated. While the female incubates, the male sits near by on a dry branch, and sings in a similar manner, but perhaps a trifle more harshly than the above-mentioned species. The female goes to nest a second time about the middle of June. The autumn migration in East Siberia takes place in September and October. The above facts were recorded many years ago by Dybowski, but at greater length.

According to Russ, this is a familiar cage-bird to

* cf. Stejneger on Japanese Birds (Proc. U.S. Nat. Mus. XIV., p. 489).

many Continental dealers trading in Siberian and Russian birds. He gives a detailed account of a specimen owned by Count von Tschusi, of Vienna, who states that its song had nothing Bunting-like about it, but much more nearly resembled that of a Goldfinch or Robin! As the songs of the two last-mentioned birds are about as much alike as those of the Chatfinch and Blackbird, I should prefer to credit the statements of travellers who have met with the species in its wild state.

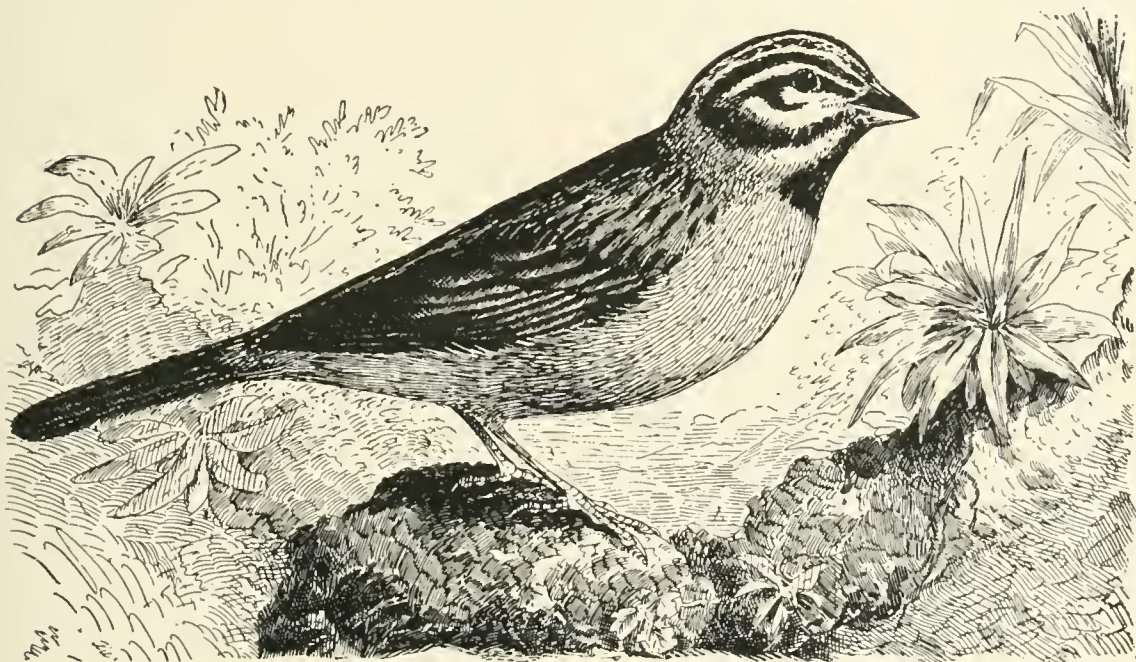
The species of *Fringillaria* may be treated in captivity in the same manner as the more typical Buntings of the genus *Emberiza*.

ROCK BUNTING (*Fringillaria tahapisi*).

Above red-brown or cinnamon reddish, with black centres to the feathers, more pronounced on mantle and

with ashy-grey tips. Habitat, Cape Colony, northward to Nyasaland and the Victoria Nyanza into Equatorial Africa, and on the West Coast to Benguela and Gaboon.

Messrs. Stark and Selater ("Birds of South Africa," Vol. I., p. 190) record Mr. Stark's observations on the habits as follows:—"I have generally met with this Bunting on broken hill-sides strewn with rocks and partly overgrown with low bushes. Like *F. capensis*, it is of tame and familiar habits, and is fond of uttering its broken song from the summit of a stone or low bush, while at intervals it opens and shuts its wings. Its notes resemble those of the Cape Bunting to a certain degree, but are at the same time easily distinguished by the ear, although the difference is not readily pointed out in words. It feeds on small seeds and various insects. "A nest taken in Upper Natal in November was built a few inches off the ground, in a small bush



ROCK BUNTING.

back, where they have ashy-brown edges; middle and greater coverts black, with reddish-buff edges; flights dull brown, with reddish edges; tail blackish, the feathers with buffish edges; head all round black; a central white streak down the crown, an eyebrow stripe, a stripe below the eye through the lower half of the ear-coverts, and a broad increasing streak on each side of the throat, white; the head and throat are thus adorned with alternate black and white stripes, the black throat-patch being the most prominent; remainder of under parts pale reddish-brown, deeper on axillaries and under wing-coverts; flights below dusky, with rufescent inner margins; beak brown, lower mandible paler; feet and irides brown. Female with the crown red-brown, like the back, the white stripes on sides of face less distinct; the feathers of the throat

sheltered on one side by a rock. The three eggs resemble those of *F. capensis* in colour" (greenish white, thickly spotted and blotched with reddish-brown and yellow, frequently in a cap over the larger end) "but are a trifle smaller than the average of the latter."

Russ (who calls this *Emberiza tahapisi*) observes that he need only have mentioned this species casually if an example had not come into the possession of Mr. Wiener, of London, and he observes that it has never subsequently appeared in the market, and has reached none of the Zoological Gardens. In 1907, however, Mr. S. M. Townsend exhibited a specimen at the Crystal Palace, and an illustration of which is published herewith. It is probable that other examples have been imported, since the species is by no means confined, as Russ imagined, to the interior of Africa.

STRIOLATED ROCK-BUNTING (*Fringillaria striolata*).

Roughly speaking this bird may be described as generally blackish with broad sandy or chestnut borders to the feathers; the lower back and rump showing very little and the lesser wing-coverts no blackish centres; the prevalent colour therefore is of a sandy or cinnamon hue; the crown is very distinctly streaked; the sides of the head are very similar in colouring to those of *F. tahapisi*, but the white stripes are a little more ashy; throat ashy white, becoming greyer on fore-neck and chest with broad black bases to the feathers; breast, thighs, and under tail-coverts sandy buff; flights below brown, with broad cinnamon inner borders; upper mandible brown, lower yellow; feet horn yellow; irides hazel. Habitat, N.E. Africa eastward over Southern Asia from Palestine to India.

Von Heuglin, speaking of this species as observed by him in Nubia, tells us that he found it frequenting stony desert country interspersed with bushes and grass. "They were shy, and preferred hiding amongst stones to taking wing; they had the moderate Bunting-like note, not loud but lively." (Cf. Shelley, "Birds of Africa," Vol. III., p. 162.)

Hume ("Nests and Eggs of Indian Birds," 2nd ed., Vol. II., pp. 170-173) gives a very full account of the nidification of the species, from which I quote the following:—"The Striolated Bunting is a permanent resident of, and breeds in, all the bare stony hills of Rajpootana and Northern and Western Punjab. It is found, but rarely, in the hills dividing Sindh and Khelat, and very likely breeds there also.

"I myself have only taken the eggs near Ajmere, on the slopes of the Aravalli; and I can add nothing to my account of their nidification written on the spot, which has been already published and which I reproduce here:—

"The breeding-season appears to be November and December. The natives say that they also lay early in July, at the commencement of the rains; but as to that I can say nothing. The very first birds that I shot on the 2nd November, the day after I arrived here, proved on dissection to be breeding; and out of the oviduct of a female shot on the 3rd I took a nearly perfect, though colourless, egg. For several days we hunted without success, finding many nests that I believed to belong to this species, and seeing everywhere females about, straws in mouth, but meeting with no eggs. At last, on the 12th November, I myself accidentally stumbled upon two nests. I was walking slowly and (if it must be confessed) footsore and somewhat despondent amongst the loose blocks and rocky shingles of the southern flanks of the Taragurh Hill, when a female suddenly sprang up and darted off from within two inches of my foot. I looked down, and there, on the sloping hillside, half-overhung by a moderate-sized block of greyish quartz, was a little nest from which the bird had risen, and which I had been within an ace of stepping on. Close at hand were two or three small tufts of yellow withered grass, but these were several inches distant from the nest. This latter (which, laid on the hillside, was some 3 or 4 inches thick on the valley side and barely three-fourths of an inch towards the hill) was composed at the base and everywhere externally of small thorny acacia twigs and very coarse roots of grass. This, however, was a mere foundation and casing, on and in which the true nest was constructed of fine grass-stems somewhat loosely put together, the bottom being lined with soft white feathers. The egg-cavity was circular and cup-shaped, about 2.25 in diameter and 1.25 in depth, and contained two tiny yellow-

gaped, dusky bluish, fluffy chicks apparently just hatched, and one (as it proved) rotten egg.

"Scarcely twenty yards further, on a slightly sloping slab of stone, partly overhung by a huge block, between two tufts of dry grass springing from the line of junction of the slab and block, I found a second precisely similar nest, containing two fresh eggs, round which both parents fitted closely all the time I was occupied in examining and securing the eggs and nest, exhibiting no apparent sign of fear.

"The three eggs thus obtained were regular, moderately broad ovals, slightly compressed towards one end, but somewhat obtuse at both. The shells were very delicate, and had a slight gloss. The ground-colour differed somewhat in all three; in one it was pale greenish; in another pale bluish, and in the third faintly brownish-white. All were spotted, speckled, and minutely but not very densely frockled with brown; a sort of reddish olive brown in two, rather more of amber in the third. In two of the eggs the markings were far more numerous towards the large end, where in one they were partially confluent; on the third they were pretty evenly distributed over the whole surface, being, however, rather denser in a broad irregular zone round the middle of the egg.

"Judging from my present experience, I should say that three was the full number of eggs usually laid."

Three specimens of this Bunting were deposited in the London Zoological Society's Gardens in July, 1884, but Dr. Russ seems not to have been aware of this fact and therefore states that it has no interest for aviculturists. On the contrary a common and pretty Bunting with so wide a range in both Africa and Asia is one which no aviculturist can afford to ignore; having been imported at least once it is likely to come again.

SAHARA OR HOUSE-BUNTING (*Fringillaria sahara*).

Above back and rump dull cinnamon, slightly striped on the back with dark brown; lesser wing-coverts bright cinnamon; rest of wing and tail-feathers dark brown bordered with cinnamon; head, nape, throat, and upper breast blue-grey striped with black, most distinctly on the crown; remainder of under surface pale cinnamon; upper mandible brown, lower yellow; feet pale yellowish-brown; irides blackish-brown. Female with the head and nape pale sandy brown and the rest of the plumage duller than in the male. Habitat, Southern Tunisia, Algeria, and Morocco.

J. L. S. Whitaker ("Birds of Tunisia," Vol. I., pp. 230-231) observes:—"In the fine Mosque of Sidi-Yacoub at Gafsa, to which I have always obtained access without difficulty, I found *F. sahara* particularly abundant, and took several nests of the species there; I also shot one or two specimens of the birds with an air-gun in the mosque courtyard, a proceeding which apparently in no way offended the religious feelings of my Arab guide, who took part in the proceedings with the greatest keenness. I confess to having felt a certain degree of compunction when shooting these little birds, for they are so extremely confiding and unsuspicious, and I abstained from securing more specimens than were necessary for my collection. I was glad to find that the Arabs of Gafsa and elsewhere do not trap this species, as they do so many others, and they probably look upon the bird with feelings of respect, although not considering it absolutely sacred. In some parts of Tunisia this species, indeed, goes by the name of the *Marabout*.

"In the towns and villages where it occurs the House-Bunting seems to be absolutely devoid of fear, and will enter the open doorway of a house with the utmost self-assurance and pick up any crumbs of bread or other

scraps of food that are to be found on the floor. The birds I met with in the open country, however, were much wilder; in fact they seemed to be decidedly shy and suspicious. This species feeds on insects and seeds of various kinds, but, like our common House-Sparrow, it subsists to a great extent upon any scraps which it may pick up in and about houses. The song of the male bird is low, soft and twittering, as a rule, but at times poured forth brightly and *con amore*, and although not very varied it is distinctly pleasing. I used often to stop and listen to one of these little songsters as it sat perched on top of a mud wall, within a few feet of me, singing and preening its feathers alternately, its mate probably being on her nest close by. The call notes of the male bird may be fairly rendered by the syllables 'zweet, zweet-a-twee,' to which the female replies 'zweet.'

The nesting season of this species, as a rule, commences about the end of March and is continued throughout the months of April and May, but in some years, after a fine, dry winter, it begins earlier. During the first fortnight of April I have found numerous nests at Gafsa, some with eggs and others with young birds in them, and . . . I have met with fully-grown young birds on the wing, in the mountains near the Oued Seldja, even before the middle of April. The nest, which is generally placed in a hole or crevice in a wall, is small and very shallow, being composed of fine fibres and dry grasses, lightly lined with horse and goat hair, and occasionally with a little wool. In the Gafsa mosque, above alluded to, I found several nests placed in small indentures in the capitals of the columns of the building. The eggs are usually three or four in number, and resemble diminutive examples of those of the House-Sparrow, being of a pale bluish-white colour, speckled with grey and brown, the spots often forming a zone at the larger end. The eggs vary a good deal, both in size and shape, but their average measurements may be given as 19 by 14 mm.

Two specimens of this Bunting were given to the London Zoological Gardens in 1892 by the late Lord Lifford. Russ says that it has no importance for aviculture; I wonder why!

CAPE BUNTING (*Fringillaria capensis*).

Above brown, broadly streaked with black excepting on the rump and upper tail-coverts, the head somewhat greyish and with a central grey streak; the upper tail-coverts with grey edges; lesser and median coverts chestnut, the latter with blackish centres; greater coverts blackish with chestnut outer borders; flights blackish, the primaries edged with greyish-white, the secondaries with chestnut; tail blackish, the feathers edged with ashy, the outermost with whitish and with an ill-defined pale spot near the tip of the inner web; a long, well-defined white eyebrow-streak, followed by a black streak over the lores and enclosing the eye; below this is a second white streak from the gape over the lower part of the ear-coverts, then a second black streak over the cheeks united to the first stripe at the back of the ear-coverts; lower parts white, the hinder throat, breast, and sides, ashy; flanks with dusky streaks; thighs brown; axillaries and under wing-coverts yellowish; flights below dusky; upper mandible dull fleshy brown, lower paler; feet fleshy brown; irides dark brown. Female described as larger, but with shorter wings and tail; it is similar to the male in plumage, but with the white streaks on the face less defined. Habitat, Cape Colony, ranging into the Transvaal and Namaland; perhaps Angola.

Dr. Stark (Stark and Selater, "Birds of South Africa," Vol. I., pp. 188-189) says:—"The Cape Bunt-

ing is almost invariably met with in pairs on broken, rocky ground, and in Western Cape Colony is a common species from the sea-level to about 5,000 ft. in the mountains. Even on the barren sandy coast of Little Namaqualand it is to be found wherever there is the slightest outcrop of rock. The 'Streepkopje' is an extremely tame little bird, and allows a very close approach as it sits, piping its simple song of 'Zizi zizi-ziz,' and opening and shutting its wings, on the top of a rock. It feeds on insects, small beetles, grasshoppers and spiders, as well as on the seeds of various grasses and weeds. The nest, rather deeply cup-shaped, is flimsily constructed of dry grass and rootlets, scantily lined with hair, and is usually placed in a low bush close to the ground or by the side of a rock. The three or four eggs, laid in September or October in the colony, are pale greenish-white, thickly spotted and blotched with reddish brown and yellow, frequently in a cap over the larger end. They average 0.80 by 0.62. This Bunting was exhibited at the London Zoological Gardens as early as 1869, but Russ says it is extremely rarely seen in German bird-shops or zoological gardens, and has never been present in the bird-rooms of that country. Of course, it would naturally be more likely to come to England than to be sent to the Continent.

The genus *Melophus*, which comes next in the British Museum catalogue, has somewhat the aspect of a Bulbul or a Grey Cardinal in general outline; its food is said to consist apparently of small seeds, but there can be no doubt that it also feeds largely upon insects and spiders, like the rest of the Buntings. In captivity I should feed it in the same manner as the Grey Cardinals experimentally, and if I found that it refused the larger seeds, I would give canary, millet, and insects, with a little soft food.

CRESIED BLACK BUNTING (*Melophus melanicterus*).

Glossy blue-black; tail-coverts black and cinnamon at the base; wings and tail dark cinnamon with dusky tips; beak dusky, blackish above and fleshy at base of lower mandible; feet flesh-brown with darker toes; the claws bluish with pale tips; irides dark brown. Female smaller than male, dusky brown above; the feathers with darker centres and pale olive-brownish edges; flight and tail feathers of a duller and paler cinnamon than in the male, dusky internally and on the central tail-feathers; crest less developed; lores and feathers round eye whitish; ear-coverts and sides of neck dull brown; cheeks and under-surface of body dull ashy; chin yellowish white; throat, breast, and sides of body dull brown with black streaks; under tail-coverts some, what reddish with black centres; axillaries dull brown; under wing-coverts and inner edges of flights reddish, the latter tipped with brown; length 6½ in., according to Sharpe (who makes the male out to be smaller). Jerdon, however, states that the male measures 6½ inches, and that the female is a little smaller; skins are very deceptive things to measure from. Habitat, Himalayas and plains of India westward to Sind and eastward to South China, Upper Burmese provinces, Karen Hills, and Tenasserim.

Jerdon ("Birds of India," Vol. II., p. 382) says:—"Sykes obtained it in the Deccan, where he found it on rocky and bushy mountains. I found it in similar places at Mlow and Sangor, but also occasionally in hedges and trees near cultivation, not far, however, from hilly ground. Hodgson found it in hedgerows and brushwood on the upland downs in winter; resorting in summer to the northern region, and it is said to be common near Simla and Mussooree. It does not, I believe, breed in the plains of India.

"Swinhoe states that a few couple only breed in

China, but that it is common in winter. I have had it in cages, and it has a rather pleasant chirping song."

Hume ("Nests and Eggs of Indian Birds," 2nd edition, Vol. II., pp. 173-177) publishes many notes on the nidification of this species, from which I quote the summary "beginning and end, the first dealing with the nest, the last with the eggs:—"The Crested Black Bunting breeds only sparingly in the plains of India. At Mount Aboo, the loftiest of the Aravallis, it breeds up to an elevation of 4,500 ft. Throughout the Himalayas, from Nepal to Murree, it breeds at all elevations from 2,000 to 5,000 or 6,000 ft., and it also nests occasionally in the various Dhooms, Terais, and Bhablurs that skirt the bases of these mountains. In the Himalayas the breeding season extends from April to June. In the plains and on Mount Aboo, June, July, and August appear to be the months in which it lays.

"The nest is placed in holes in banks or walls, on the ground under some overhanging clod or rock, or concealed in some thick tuft of grass, and very exceptionally (I have only seen one such) in a low thick bush within a few inches of the ground. The nests vary a good deal. They are often very slight, loosely put together, shallow saucers, composed entirely of fine grass-roots, without any lining; at other times they are neat compact cups, made with grass or grass and moss, and lined with fine grass, fern and moss-roots, vegetable fibres, or even horsehair. I have seen loose straggling saucers, 6 in. in diameter, and with a deep circular cavity little more than 2 in. across, and nearly as deep as wide.

"They lay three to four eggs, quite as commonly the latter as the former number; but I have never seen or heard of more being found.

"The eggs of this species vary a good deal in shape, but typically are rather broad ovals, somewhat obtuse at the small end; specimens, however, often occur very pointed at this end. The ground colour is a pale greenish-white in some, and pinkish or brownish white in others; and they are thickly speckled and spotted, and in some more or less freckled and mottled, with red, purple, and reddish or purplish brown, the markings of any one egg being usually unicolourous. They are always most dense at the large end, where in the majority of eggs they form a more or less conspicuous but ill-defined and irregularly mottled cap; they have little or no gloss. The markings entirely want the bold jagged line character so characteristic of the eggs of many Buntings. In some eggs the markings are so closely set as to leave scarcely any of the ground-colour visible, and to give the whole egg a reddish-brown or dingy brown mottled appearance, while in a few the small end of the egg is almost entirely devoid of markings.

"In length these eggs vary from 0.68 to 0.86, and in breadth from 0.6 to 0.76; but the average of twenty-two eggs is 0.79 by 0.63 nearly."

Russ says:—"In the year 1876 Mr. Gaetano Alpi, of Trieste, sent me a male, and this must surely have been the first importation of the species with us, though certainly a pair had already reached the Zoological Gardens in London in 1873. After I had laboured in vain to acquire a female, I passed the above-mentioned male over to Councillor von Schlechtendal, whose magnificent collection included a considerable number of rare and interesting species in single specimens. The above-named informed me later respecting the bird as follows:—"When the Bunting came into my hands I placed it in a very roomy cage which had previously only been occupied by a pair of Sun-birds. The latter delightful birds seemed to be much excited over their new companion but abstained from any hostility, and

the timorous Bunting never dreamt of attempting anything of the kind on his side. The Sun-birds received the usual soft food as well as some poppy seed, and occasionally some mealworms. In addition I gave him a mixture of rice-flour and crushed egg-bread in a somewhat moistened condition. I prefer the latter food to moistened white bread, and give it in addition to seeds to all my small Passerine birds. On the Bunting's behalf I added to these different kinds of food several varieties of millet, as well as rice and canary seeds; he, however, scorned the latter seeds, and confined himself almost exclusively to the white millet and soft food; he also ate with great gusto the mealworms which were offered to him. The somewhat delicate bird recovered quickly, and also passed through his moult rapidly and successfully, so that he soon exhibited himself in his complete characteristic beauty. The graceful crest is depressed when the bird is resting or eating, but erected as soon as he begins to move about." I do not think I need quote the remainder of his observations, which are not exactly instructive or of general interest.

LARK BUNTING (*Chondestes grammacus*).

Above pale ashy-brown, feathers of the mantle, upper back and scapulars with black centres; upper tail-coverts with faint indications of dusky streaks; lesser wing-coverts blackish, edged with ashy-brown; median coverts blackish, tipped with white, the inner ones rufescent; greater coverts blackish edged with brown and tipped with white; flights blackish brown, with paler margins, those of the secondaries rufescent; primaries with a pale cinnamon mark at base of outer web; centre tail-feathers brown with paler edges; remaining feathers black increasingly tipped with white, the outermost feather being also white along the outer web; crown with a broad whitish central streak passing into ashy-brown on the nape and bounded on each side by a chestnut band which is streaked with black at the sides of the crown; lores, a broad eyebrow-stripe and centre of eyelid whitish; a black streak from base of beak through the eye to ear-coverts; the latter chestnut; a narrow white stripe below the eye and another encircling the ear-coverts and passing into the white cheeks; a black interrupted streak from below cheeks bounding the sides of throat; under surface white; a few black spots on fore-neck; sides, flanks, and thighs pale ashy-brown, under wing-coverts and axillaries the same; those near edge of wing with blackish bases; flights below dusky with ashy inner edges; beak horn-brown, bluish below; feet fleshy whitish; irides brown. The sexes are said to be alike, but so far as I can judge, the wings and tail are shorter in the female. Habitat, United States from the eastern edge of the prairies to the Pacific States, and southwards to Mexico and Guatemala.

J. G. Cooper ("Orn. Calif.," p. 193) observes:—"They reach the Columbia River east of the Cascade Mountains early in May, and breed in this state from near San Diego northward in the sheltered valleys, and at Santa Barbara. I have not found their nests in this State, but have met with many of them from Missouri west through Kansas and Nebraska, in May and June. They build on the ground, constructing their nests chiefly of grass; the eggs are white, with scattered hair lines and spots of brown near the large end, if I remember rightly." According to Ridgway, this species inhabits sparsely wooded districts.

Russ observes:—"It is extremely rarely imported, yet this will occur more abundantly presently, as it is reckoned as one of the most widely distributed and abundant species of North America. If it ever is abundantly imported it will be from Central, not North America."

WHITE-SHOULDERED LARK BUNTING* (*Calamospiza bicolor*).

Above and below sooty black; a broad band including the outermost row of lesser, and the median wing-coverts white; outer margins of flights and tail-feathers also white; beak pale blue, upper mandible dusky along ridge; feet reddish-brown. Female above brown with darker streaks; ends of greater wing-coverts broadly fulvous-white; centre of crown more ashy; outer tail-feathers with an increasing white spot on inner web; below white sparsely spotted and streaked with black on the breast and sides; region round eye, a faint streak above it, and a crescent at back of ear-coverts, whitish; centre of throat almost unspotted, but a mottled black streak at the sides separating it from the crescentic whitish streak. Habitat, interior plains of North America.

J. G. Cooper ("Orn. Calif.," p. 226) says:—"This interesting species spends its time on the ground, associating in large flocks, and, according to Nuttall, is one of the sweetest songsters of the prairie. The nest is built among the grass, and the eggs are of a beautiful blue, sometimes with a few red spots."

The name *C. bicolor* being very characteristic of the male, and having been generally used from 1837 to 1885, I see little use in altering it.

Three examples of this Bunting were acquired by the London Zoological Gardens in 1901.

We next come to the group of Buntings to which the popular name of "Song Sparrow" has been applied (much to the disgust of our American friends; and yet if *Spizella* may be called "Chipping Sparrow," why may not *Zonotrichia* be called "Song Sparrow"? Our friends want us to use their popular names.)

Although not gorgeous in colouring, or even remarkable for their vocal acquirements, the Song-Sparrows are very pretty, easily tamed, and interesting from the fact that they scratch in the seed-pan after the manner of fowls.

WHITE-THROATED SONG-SPARROW (*Zonotrichia albicollis*).

Above chestnut streaked with black on neck and mantle, the latter with paler spots at end of outer webs; lower back and rump ashy-brown; upper tail-coverts reddish-brown edged with ashy; lesser wing-coverts dull chestnut with ashy margins; median and greater coverts blackish with reddish-brown edges and white tips, the innermost feathers chestnut with black centres; flights and tail-feathers dark brown with pale margins, the secondaries and central tail-feathers with chestnut borders; crown with a central longitudinal white streak, bounded on each side by a broad black stripe; a broad white eyebrow stripe, yellow above the lores, which are ashy, as also are the feathers below the eye and the ear-coverts; the latter with white shaft lines, separated by a black line from the cheeks; this line widens above the hinder ear-coverts, where there is a small whitish spot; cheeks and throat white; remainder of under parts grey fading into white on the abdomen; sides of breast streaked with chestnut, lower flanks brown with indications of blackish streaks; thighs somewhat olivaceous; under tail-coverts buffish, streaked with brown and partly white-tipped; axillaries and under wing-coverts whitish stained with greenish-yellow;

flights dusky with inner webs ashy; upper mandible dusky, lower bluish-grey, lilaceous at base; feet pale brown; irides brown. Female duller; the black stripes on crown brownish, the central streak and hinder portion of eyebrow stripe greyish or buffish and duller above the lores; the white on throat more restricted, sometimes flecked with dusky and separated by a dusky streak from the cheeks; grey of breast duller, the sides generally more or less streaked with dusky. Habitat, Eastern United States to latitude 65 deg. N., west to Dakota; breeds from New England and other Northern States northward, and winters from Middle States southward (sec. Cones); accidental in Europe.

According to Gentry this bird appears towards the end of April in Eastern Pennsylvania in company with *Z. leucophrys*, and occurs in moist and out of the way spots and is not very shy. Its song is loud and tuneful and consists of twelve notes which are uttered monotonously from early morning to late evening. Its food consists of seeds of grasses and weeds and various kinds of insects. According to Dr. Brewer it breeds singly in the north-western parts of Massachusetts and very abundantly in the British provinces. John Richardson found a nest on 4th June which was constructed of grass and lined with hair and feathers, and another with vegetable wool; in other respects it resembles its relatives (cf. Russ, "Fremdl. Stubenv." Vol. I., p. 466).

Russ tells us that occasionally one sees the bird at all dealers, but only a few specimens. In 1874 many pairs were imported by Mr. Schoebel, three of which reached his birdroom, but apparently they were all diseased and soon died.

Well, that state of things is not likely to recur, but our Zoological Gardens acquired three specimens of this species by exchange in 1907; they had exhibited the species before.

WHITE-EYEROWED SONG-SPARROW (*Zonotrichia leucophrys*).

Above ashy-brown, ashy on neck and mantle; back and mantle with chestnut centres and ashy margins to the feathers, lower back and rump brown; lesser wing-coverts ashy; median and greater coverts blackish with pale brown outer edges and a white terminal spot, the innermost greater coverts reddish externally; upper tail-coverts and tail-feathers brown, ashy at edges, the outer feather paler and fringed with whitish towards the tip; crown with a broad longitudinal central white streak, bounded on each side by a broad stripe of black meeting across the forehead; a broad white eyebrow stripe running to the nape, bounded below by a narrow black stripe running above the lores and from behind the eye to the nape; cheeks, ear-coverts and sides of neck ashy-grey; under surface ashy-grey, the chin and centre of abdomen whitish; flanks brownish; under tail-coverts pale cinnamon buffish; thighs dusky at back; axillaries and under wing-coverts pale ashy with brownish bases; flights below dusky with ashy inner edges; beak reddish-orange, tipped brown; feet pale brown; irides reddish-brown. Female "usually with the median crown-stripe rather narrower and greyer, the occipital portion, and also the supra-auricular stripe, distinctly grey" (Ridgway). Habitat, North America, especially eastern, and rather northerly; west to the Rocky Mountains; north to Greenland; south to Cape St. Lucas; winters in Mexico (Sharpe).

J. G. Cooper ("Ornith. Calif.," p. 197) says:—"This very close ally of *Z. gambelii* is well known in the Eastern United States as a Southern migrant; in the spring breeding abundantly in Labrador and the shores of Hudson's Bay. The habits and song are very similar to those of *Z. gambelii*, and the mode of nesting almost

* Ridgway calls this species "Lark-Bunting," and *Chondestes* he calls "Lark-Sparrow," but there can be no doubt that both are Buntings; he rejects the specific name *bicolor* as not of Linnaeus, adopting *melanocorys* instead.

† It would be more correct to call them Song-Buntings; but we cannot call one bird a "White-crowned Sparrow" to suit the North Americans, and another Chincolo Song-Sparrow to suit the residents in the South; we must have uniformity.

identical." Of the latter species he writes:—"Near the mouth of the Columbia I found a nest of this bird in June, 1854. It was built in a bush, not more than a foot from the ground, formed of grasses neatly interwoven, and lined with softer materials. The eggs, if my memory of them is correct, were four or five in number, white, with thinly scattered dark spots near the large end.

"The song of this species is loud but short, and remarkably melancholy. It may be heard during the whole year at intervals, and frequently at night, when its sad tone seems peculiarly suited to the darkness."

Russ says "the bird appears very rarely in the market"; it has appeared at the London Zoological Gardens. In 1904 Mr. Seth-Smith was able to borrow a male of *Z. leucophrys*, which he paired up with a female *Z. pileata*; the birds went to nest in May and reared one young bird, went to nest again in June and reared three. While in their nestling plumage the young were not much to look at, but in their adult plumage were rather pleasing.

GREY-HEADED SONG-SPARROW (*Zonotrichia canicapilla*).

Above brown; the mantle, upper back and scapulars broadly streaked with black; lower back and rump more ashy and without streaks; lesser wing-coverts ash-grey; median and greater coverts black, rufescent externally, white-tipped; flights blackish, primaries edged with whitish, secondaries with chestnut; upper tail-coverts and tail-feathers blackish-brown, the margins more ashy; outer tail-feathers with whitish fringes; head ash-grey, the forehead and eyebrow-stripe whiter; lores, feathers below eye, and ear-coverts blackish, the latter washed with ashy and streaked with whitish, black along upper margin to sides of neck; the latter and collar at back of neck chestnut, as well as the sides of the breast; a large white patch behind ear-coverts; cheeks and throat white, the former and the chin dusky at base of feathers; a black patch at back of throat; breast ashy; abdomen and under tail-coverts yellowish-white; sides of breast and flanks more or less red-brown; thighs ashy with whitish tips to feathers; under wing-coverts whitish, dusky at base; axillaries pale yellowish brown; flights dusky with ashy margins to the inner webs; beak black or brownish flesh-coloured; feet light grey or brownish flesh-coloured; irides pale amber.* The female has not been differentiated, but is probably slightly duller. Habitat, Patagonia.

Dr. E. Lönnberg, in an account of "Birds from N.W. Argentina and the Bolivian Chaco" (*The Ibis*, 1903, p. 451), says of this species:—"Iris yellowish brown. Very common at Moreno, feeding on seeds and insects; it builds its nest in stone walls and under the roofs of houses." He however explains that the Moreno specimens "are to a certain extent intermediate between *Z. pileata* and *Z. canicapilla*, having the coloration of the former and especially the black bands on the sides of the crown; but they are much larger than *Z. pileata*, almost attaining the size of *Z. canicapilla*, and I therefore refer them to that species." I should have thought size less important than colour and pattern.

Of typical *Z. canicapilla* Mr. M. J. Nicoll says (*The Ibis*, 1904, p. 42):—"This Finch is very common at Punta Arenas, where I found it among the barberry bushes. Its call-note resembled that of our Yellowhammer."

On June 25th, 1897 (as recorded in *The Avicultural Magazine*, 1st ser., Vol. III., p. 197), a specimen of this rare Patagonian bird was brought to me by Captain

Carvosso, on board of whose ship it flew when a hundred miles south of Cape Horn; he brought it to me to discover what it was and whence it came. I recognised it at once as a near relative of *Z. pileata*, but differing in its unstriped crown and pale amber irides.

Captain Carvosso kindly gave me the bird in order that I might have an opportunity to study it in captivity, but on condition that as soon as it died it should be given to the museum authorities.

Although in good plumage, the bird seemed dull and listless, having evidently been fed upon unnatural food since its capture. I took it home and turned it into a spacious flight-cage; here it flew heavily, swallowed a little grit and a few canary-seeds, but seemed very dull and stupid. The introduction of a few mealworms and cockroaches partly aroused it, so that it erected its crest and hepped after one of the latter, but it evidently felt too ill to exert itself, and presently returned heavily to its perch. In the morning it was dead, and I had to take it back to town with me; it was disappointing.

CHINGOLO SONG-SPARROW (*Zonotrichia pileata*).

The male bird has the upper part of the head and nape and the cheeks ash-grey, boldly and longitudinally striped with black; supercilary area slightly whiter than the rest of the ground colour, sides and back of neck liver-reddish, back and wings ruddy brown, with bold black shaft-stripes to the feathers, lower back and tail smoky brown, the tail feathers with paler borders, lesser wing-coverts ash-grey, darker towards the base of the feathers, median and greater coverts dark brown, with paler margins and white tips, under parts greyish-white, washed with brownish on the breast and abdomen, and with brown on the flanks; beak greyish brown, the lower mandible paler, feet dull flesh-brown, iris dark brown.

The female is slightly larger than the male, but very similar in plumage. Habitat, Central America from Mexico to Panama, and throughout South America to South Brazil, Bolivia, and Chili.

Mr. Hudson says of this species ("Argent. Ornith.," Vol. I., pp. 58, 59):—"The common, familiar, favourite Sparrow over a large portion of the South American continent is the *Chingolo*. Darwin says that "it prefers inhabited places, but has not attained the air of domestication of the English Sparrow, which bird in habits and general appearance it resembles." As it breeds in the fields on the ground, it can never be equally familiar with man, but in appearance it is like a refined copy of the burly English Sparrow—more delicately tinted, the throat being chestnut instead of black; the head smaller and better proportioned, and with the added distinction of a crest, which it lowers and elevates at all angles to express the various feelings affecting its busy little mind. "On the treeless desert pampas the Chingolo is rarely seen, but wherever man builds a house and plants a tree there it comes to keep him company, while in cultivated and thickly settled districts it is excessively abundant, and about Buenos Ayres it literally swarms in the fields and plantations. They are not, strictly speaking, gregarious, but where food attracts them, or the shelter of a hedge on a cold windy day, thousands are frequently seen congregated in one place; when disturbed, however, these accidental flocks immediately break up, the birds scattering abroad in different directions.

"The Chingolo is a very constant singer, his song beginning with the dawn of day in spring and continuing until evening; it is very short, being composed of a chipping prelude and four long notes, three uttered in a clear thin voice, the last a trill. This song is repeated at brief intervals as the bird sits motionless, perched

* I noted this colour in the living bird.—A. G. B. Mr. M. J. Nicoll speaks of them as "dark brown"; perhaps they vary occasionally.

on the disc of a thistle-flower, the summit of a stalk, or other elevation; and where the Chingelos are very abundant the whole air on a bright spring morning is alive with their delicate melody; only one must pause and listen before he is aware of it, otherwise it will escape him, owing to its thin ethereal character, the multitudinous notes not mingling, but floating away, as it were, detached and scattered, mere gossamer webs of sound that very faintly impress the sense. They also sing frequently at night, and in that dark silent time their little melody sounds strangely sweet and expressive. The song varies greatly in different districts; thus in Bahia Blanca it is without the long trill at the end, and in other localities I have found it vary in other ways.

The Chingelos pair about the end of September, and at that time their battles are frequent, as they are very pugnacious. The nest is made under a thistle or tuft of grass, in a depression in the soil, so that the top of the nest is on a level with the surface of the ground. The nest is mostly made and lined with horsehair, the eggs four or five, pale blue, and thickly spotted with dull lemon. Sometimes, though very rarely, a nest is found in a bush or a stump several feet above the ground. Two broods are reared in the season, the first in October, the second in February or March. I have known these birds to breed in April and May, and these very late nests escape the infliction of parasitical eggs. When the nest is approached or taken the Chingelos utter no sound, but sit in dumb anxiety, with tail expanded and drooping wings."

The song, described as a "delicate melody," is as follows:—"Tewhitti eeo, eeo; chee." I have heard it dozens of times, and never knew it to vary.

From what Dr. Russ says, he appears never to have possessed this bird; he, moreover, concludes his account of it thus:—"It has not yet been bred, since hitherto nobody has taken the trouble to make experiments with this plain-looking Sparrow." It is strange that the quiet beauty of this charming little bird should not have appealed to the great German breeder; it is far more artistically beautiful really than the gaudy Nonpareil. Apart from all questions of plumage, the scientific interest of breeding a dull-coloured bird is certainly quite as great as that of breeding the most brilliantly tinted species. Lastly, the term "Sparrow" as applied to this species is a misnomer, since the habits of the bird, as described by Mr. Hudson, more nearly resemble those of the Reed Bunting; moreover, it is an undoubted Bunting.

In 1907 Mr. W. E. Teschemaker bred this species in one of his aviaries, and has written an interesting account of his experience in *The Avicultural Magazine* for November of that year. The nests were built well away from the earth. The ground-colour of the eggs laid by two hens was white or cream-coloured, not blue, but we know that in very many species which generally lay pale blue eggs the cream-coloured form frequently occurs. (See my notes on the eggs laid by the Green Singing Finch as one instance.) Mr. Teschemaker very kindly sent me two of the young birds, which arrived on October 30th.

The lovely members of the genus *Cyanospiza* were always procurable previous to about the year 1904 at the rate of about eight or nine shillings apiece. Now that no more are allowed to be shipped from the United States the only chance for the dealers is to obtain them from Central America and the West Indies; therefore it is possible that these birds may be considerably dearer.

Like the species of *Zonotrichia*, they do well upon millet and canary, in addition to insect food.

NONPAREIL BUNTING (*Cyanospiza ciris*).

The cock bird, which is a little smaller than a Chaffinch, but of a similar form and somewhat the same arrangement of colours, has the upper part of the head, cheeks, and shoulders of an almost ultramarine blue, the back golden green, shading into orange on the rump; the tail-coverts yellow, shading into golden green; the tail feathers duller green; the wing feathers greyish bronze; the lesser coverts being wholly bronze, whilst all the other wing feathers have the outer web golden green; chin, throat, breast, belly, and under tail-coverts bright vermilion red, which changes in confinement (excepting in a sunny outdoor aviary) to golden yellow, the flanks slightly tinged with green; beak and legs dark grey, eyelids crimson; iris of eye hazel. The hen and young differ from the adult cock bird in having no blue on the head, the place of this colour being occupied by green; the other parts are yellow instead of vermilion; all the tints are also slightly duller. Habitat, Southern States of North America, Cuba, the Bahamas, Cozumel, and neighbouring islands, and Central America to Panama.

In its native land its favourite haunts are small thickets, where the cock may be heard singing from the highest branches of some shrub or bush; the hen usually places her nest in orange hedges or the lower branches of trees, blackberries, or brambles, and when sitting becomes so tame that, it is stated, she can even be lifted from the nest; the latter is formed of extremely dry grass, felted together with the silk of caterpillars, hair, and fine rootlets; the eggs are pearly white, with blotches and dots of purplish and reddish brown. The Nonpareil, being somewhat combative, is usually trapped by means of a stuffed specimen set up on a platform of a trap-cage. In an aviary it should not be associated with its relative the Indigo Bunting, or it will occupy much of its leisure in chasing and disputing with this bird, to its no small annoyance. One of the chief charms of the Nonpareil is the surprising readiness with which it learns to recognise its keeper and to take mealworms, flies, and other insects from his fingers; the hen I find less tame and not so hardy as the cock.

I have had a fair number of examples of this species, including two genuine hens, but have never known them to nest in captivity, although I feel certain that the male which I possessed in 1898-9, from his excitement and abnormal pugnacity, would have bred readily if confined in an aviary with a hen of his own species, and no disturbing elements; he paired with a Brambling, and she began to build, but laid no eggs. The Nonpareil should always have insect-food of some kind in addition to seed; ants' cocoons will answer the purpose.

In *The Avicultural Magazine*, 1st ser., Vol. V., p. 165, the Rev. C. D. Farrar published an account of his success in breeding the Nonpareil Bunting in captivity. According to him, the eggs laid by his hen were sea-green, heavily blotched at the large end with sienna-brown; but it must not therefore be concluded that this is the normal colouring, and that recorded by American observers, who have taken many nests, is not the more frequent type; eggs of most birds vary considerably.

INDIGO BUNTING (*Cyanospiza cyanea*).

The cock when in colour is bright cobalt blue tinged with ultramarine on the head, throat and middle of breast; on the other parts there are traces of emerald green, the chin partly black, the feathers of the wing brown, slightly bluish on their outer edges. The hen is brown above, tinged with blue on the shoulders, edges of larger feathers, and rump; below whitish,

indistinctly streaked with dull buff. The cock when out of colour, or when immature, is very like the hen, the beak is brownish-black, bluish beneath, iris of eye brown, legs dark brown.

The Indigo Bunting comes from the Eastern United States, whence its range extends southwards to Guatemala, Panama, etc. This species breeds in gardens, orchards, or on the outskirts of woods, building its nest in bushes; in the autumn, however it is said to frequent the open country in flocks, its favourite places for singing from are the top of a tree or chimney. The nest is constructed of coarse grasses and sedges, and is thickly lined with hair, the eggs are bluish or greenish white, sometimes sparingly spotted with red-brown at the larger end. This bird is of about the size of a Linnet, being 5 in. in length, and, as it is tolerably peaceable, it may safely be associated with these or any birds of about the same size; indeed I do not believe it would injure even the smallest Waxbills. I have at various times had several so-called "Indigo Finches," and have found them not only a great ornament to an aviary, but rather bright singers during the summer months; the song is always the same, two rapid notes followed by three long-drawn ones and followed by a number of short notes; the commencement, which is also frequently sung after dark, may be expressed as "chichi, chee, chee, chee," the last note being more sustained than the others, and the short notes which follow being such as a Canary might produce.

It used to be asserted by the late Dr. Greene and others that it was utterly impossible to produce hybrids between the Indigo Bunting and the Canary, it being supposed that Buntings and other largely insectivorous Finches did not feed their young from the crop; this of course was a mistake. Some years ago Mr. W. E. D. Scott, then of Princetown University, U.S.A., told me that he had bred hybrids between this species and the common Canary, and that they were green birds; this confirmed the late Mr. Wiener's statement in Cassell's "Cage-birds," that "where young cross-breeds resulted, their colours were disappointing."

I was not successful in obtaining the cross myself, but there is not any reason, beyond the excitable and restless nature of the Indigo Bunting, why it should not be as readily obtainable as a Greenfinch-Canary hybrid. In each case birds of different sub-families are paired. The best chance for a successful result would be to turn a male Indigo Finch and a female Canary into a spacious garden aviary planted with shrubs, and put no other birds with them. In a large flight cage the Indigo Bunting will not let the Canary alone for ten minutes from morn to night, and when she builds he pulls her nest over the eggs, so that they stand no chance of incubation.

In 1896 I turned out this Bunting with a hen Canary into an outdoor aviary, but here (as previously in a flight-cage) the Bunting pulled out her nest as fast as she built it; eventually I turned in a cock Canary with them and she immediately deserted her foreign husband and reared two pure Canaries. Previous pairing with the Bunting did not affect the young birds. Mr. Farrar bred the Indigo Bunting in 1900.

LAZULI BUNTING (*Cyanospiza amana*).

Above blue with a greenish tinge, the mantle, upper back and lesser-coverts considerably darker; median coverts white; greater coverts very dark, blue on the edges and tipped with white; remainder of wing and tail-feathers blackish, with blue outer margins; upper tail-coverts rather duller blue than lower back and rump, the latter being bright cobalt blue; crown of head also bright blue; loreal region black, remainder of

sides of head, throat and sides of breast bright blue; upper breast pale brownish-chestnut, separated from the blue throat by an ill-defined white crescent; rest of under surface white; beak black, bluish below; feet black, irides brown. Female above dull brown, greyer behind; lesser coverts and margins of flights and tail-feathers dull bluish; crown somewhat bluish, the base of forehead, lores and eyelid whitish; ear-coverts pale brown; remainder of sides of head, throat, breast, sides, and flanks pale buffish; remainder of body below whitish; flights below dusky, ashy along inner web. Habitat, High Central Plains of N. America to the Pacific, ranging into Mexico.

J. G. Cooper ("Ornith. Calif.," Vol. I., p. 234) says:—"During the summer there is scarcely a thicket or grove in the more open portions of the State, uninhabited by one or more pairs of this beautiful species. The male is not very timid, and frequently sings his lively notes from the top of some bush or tree, continuing musical throughout summer, and in all weathers. The song is unvaried, and rather monotonous, closely resembling that of the Eastern *C. cyanea*."

"Their nest is built in a bush not more than three or four feet above the ground, formed of fibrous roots, strips of bark and grass, with a lining of plant-down or hairs, and securely bound to the surrounding branches. The eggs are four or five, white, faintly tinged with blue. At Santa Barbara I found them freshly laid on May 6th."

"These birds are never very gregarious, though the males arrive in the spring in considerable flocks, travelling at night, and several days before the females. The latter are at all times very shy, and so plain in plumage that they are very difficult to obtain, unless on the nest."

"They arrived at Santa Cruz in 1866 about April 12th, ten days earlier than observed at San Diego in 1862. A nest found May 7th, in a low bush close by the public road, and about three feet from the ground, was built very strongly, supported by a triple fork of the branch composed of grass blades firmly interwoven, the inside lined with much horsehair and cobwebs. The outside measured three inches in height, three and three-fourths in width; inside it was two wide, one and three-fourths deep. The three eggs, partly hatched, were pale bluish-white, and measured 0.75 by 0.56 inch."

Formerly this was a common cage-bird in the Western States of N. America; but as Dr. Russ tells us, it was extremely rarely imported into Europe, and probably there will be less likelihood of our meeting with it in the trade now than formerly.

VARIED NONPAREIL (*Cyanospiza versicolor*).

General colour above dull purplish red, the scapulars blue; a narrow frontal line and the lores black; forehead and front of crown, region above ear-coverts, back of nape, rump and upper tail-coverts pale lilacine or mauve-bluish; the cheeks, ear-coverts and lesser wing-coverts deeper lilacine blue; lower eyelid and back of upper eyelid, back of crown and upper part of nape scarlet; median wing-coverts purplish red, black at base; greater coverts blackish with purplish red edges and tips; remaining wing and tail feathers blackish, edged externally with dull blue; the inner secondaries suffused with purplish red; chin black; throat and breast purplish maroon, the throat often redder; remainder of under surface deep purplish lavender, greyer on the flanks; wings below dusky with dull greyish and purplish edges; tail-feathers blackish with dull blue edges; beak blackish above paler below (possibly greyish in life); feet black; irides probably brown. Female above mouse-brown, greyer on rump and upper tail-coverts; middle and greater wing-coverts with paler edges and tips; flights edged with

bluish grey; tail dusky, washed and edged with bluish; under surface greyish-brown, the throat, abdomen and tips of under tail-coverts buffish white. Habitat, "Texas; Michigan rarely; Lower California, breeding. Central America: Mexico and Guatemala."—Sharpe.

All that J. G. Cooper tells us ("Ornith. Calif.," Vol. 1, p. 235), is:—"This beautiful bird is not rare at Cape St. Lucas, where it breeds; the nest and eggs, and the habits of the bird itself, likewise, are probably much like those of *C. amena*."

Mr. Beebe has given very little information about this species in his "Two Bird-lovers in Mexico." He tells us, p. 350, that the male utters a rather sweet but simple song, and at p. 394 (Appendix):—"Common only along the edges of the barranca streams and on the Colima trail, in company with flocks of Black-headed Grosbeaks." I do not know where more information can be obtained. I have looked through many volumes in vain.

Dr. Russ tells us that this "Western Nonpareil," "Varied Bunting," or whatever it is decided to call it, has always been extremely rare in the European market. I can quite believe that, but there is always a chance that it may come in some consignment from Central America.

AMERICAN SNOW-BIRD* (*Junco hiemalis*).

"Head, neck, chest, upper breast, sides, flanks, and upper parts plain slate-colour, darker on head, where approaching slate-black on pileum, rather paler (approaching slate-grey) on rump and sides; lower breast, abdomen, anal region, and under tail-coverts white; six middle tail-feathers slate-blackish, edged with slate greyish; two outermost tail-feathers white (the second sometimes dusky at base and edged with dusky toward tip), the third white and dusky (the latter usually predominating); bill (in life) pinkish or lilaceous white, with dusky tip (at least in winter); iris dark reddish brown or claret purple; tarsi light brownish, toes usually darker." *Adult female*.—Similar to adult male, but the slate colour rather lighter (sometimes decidedly so), and the second tail-feather always (?) partly dusky."—Ridgway. Habitat, "N. America, chiefly east of the Rocky Mountains, breeding from the higher parts of the Alleghanies, northern New York, and Northern New England northwards. South in winter to the Gulf States." (Cf. A.O.U. Check-List.)

The following account of the life habits is a free translation from Russ's work; he quotes from various American authors, and then gives his own experiences:—According to Gentry, this species appears in Pennsylvania in cold seasons as early as the middle of October, but usually in November. At first one notices it in meadows, fields, and the outskirts of woods, but with the fall of snow and increased cold it is driven by hunger to the vicinity of human habitations, when it becomes confiding and even impudent and feeds on scraps in courtyards and gardens.

In the autumn berries and seeds serve it for food; in winter it eagerly devours the seeds of all kinds of weeds as well as the eggs and pupæ of insects; in the spring it feeds on the anthers and stalks of the flowers of various plants; an examination of the crop revealed red ants, etc., in addition to seeds and grit.

The flight is low, undulating, and fairly rapid. When feeding one usually sees it on the ground, and as a rule it does not perch high in a thicket, rarely at the tops of high trees.

Though confiding and bold, it is frequently shy and

nervous; it lives in flocks, starts up with every unusual sound, but wheels round again to the same spot. The call-note is *tsic*.

In the spring, as soon as it returns to the outskirts of the woods, etc., it becomes far more distrustful and at the same time more sprightly. It always repeats its joyous song in the following syllables—*twee-twee-twee-ah*, *twee-e-e-e-ah*. It somewhat resembles that of the Pigmy Sparrow, *P. pusilla*, but is neither so loud nor so prolonged. Extraordinary discrepancies occur in the migration of this species; for instance, in the last third of June, 1875, the Snow-finches were as abundant here as in the winter, and were, moreover cheerful and lively. This late stay also was accounted for by the remarkably long duration of the winter, and I conclude therefore that their breeding-place could not be far from here, probably in the nearest mountains.

The Snow-finch is next said to breed only at high elevations. The nest is placed on the ground in scanty scrub and grassy plains, and is concealed under tufts of grass, roots, or dead leaves; it is constructed externally of coarse bents, grasses, and straw, fine roots, strips of bark, and horsehair, woven together, and lined with soft moss and animal wool; the cavity is deep and wide compared with the size of the bird. The eggs are yellowish-white, thickly sprinkled, especially at the larger end where they sometimes unite into a patch, with small reddish or dark chocolate spots.

Russ says that this bird seldom appears in the market, which is certainly true so far as our market is concerned, though I have seen one or two specimens at long intervals, and I believe I have also met with it at one or two bird-shows; he says that Reiche and Hagenbeck received it as a rule haphazard and singly and he believes that several pairs were only received on one occasion. He continues as follows:—"The first pair I received from Karl Hagenbeck in 1868, and I was delighted by their strangely great sprightliness, their pretty and graceful movements and their soft, monotonous, but not unpleasant song. They soon began nesting."

"In my birdroom I kept the above-mentioned pair in excellent condition for some years and they nested almost regularly nearly every year in March until the end of May. The very small nest was constructed by both mates of grass-stems, strips of paper, and threads of worsted, and lined with horsehair. At the beginning, however, owing to their already mentioned sprightliness, they never reared the young, or deserted the nest at the slightest alarm. A second pair was the first to rear several broods; one in the first year and two in the second, each time consisting of three young from three to four eggs. Incubation lasts twelve days; the female alone incubates, is fed by the male and assiduously defended, and both together bring up the young."

OREGON SNOW-BIRD (*Junco oregonus*).

Head, neck, and breast all round black, slightly duller and more slaty on throat and breast; back and scapulars dull chocolate; rump, upper tail-coverts, lesser and middle wing-coverts dull mouse-grey; greater coverts, flights and tail-feathers blackish with greyish edges, but the inner wing-feathers browner than the others; two outermost tail-feathers mostly white, and the third partly white towards the tip; sides and flanks rusty cinnamon, the latter suffused with mouse-brown; central portion of body below, including back of chest, abdomen and under tail-coverts white; beak pinkish-white, slightly dusky at tip (becoming waxy yellow after death); feet pale brown, the toes and claws slightly darker; irides reddish brown. Female with head, neck, and chest slate grey, the crown and nape browner; the back and scapulars paler brown; rump, upper tail-

* From their habits I should judge that the Snow-birds would benefit by a more varied seed diet; I should offer them canary, millet, German rape, oats, and hemp. Insects should of course be given.

coverts and lesser wing-coverts deeper brown; wings and tail browner than in male; second tail-feather less than half white; otherwise as in male, but the cinnamon on sides below rather duller. "Habitat, Western United States, northward to Alaska, east to the Plains, south in winter to New Mexico, Arizona, and South California. Accidentally in Michigan and Massachusetts." (A.O.U. Check-list).

J. G. Cooper ("Ornith. Calif.," Vol. I., pp. 200-201) says:—"This species is abundant in winter throughout most parts of the State, and resides in summer in the mountains, probably down to the 32nd parallel, though I have not determined its residence along the coast further south than Monterey. That locality is very cool, and an extensive forest of pines coming down to the coast favours the residence of several Northern birds during summer. At San Diego I observed them until April 1st, when they probably retired to the high mountains visible a few miles back from the coast. A few also visit the Colorado Valley in winter.

"On the Coast Mountains south of Santa Clara I found many of them breeding in May, 1864; one nest I saw near the west base of the mountains, on the 13th, containing young just ready to fly. It was built in a cavity among the roots of a large tree on a steep bank, formed of leaves, grasses, and fine root-fibres, and covered outside with an abundant coating of green moss, raised above the general surface of the ground. The old birds showed such anxiety that I was induced to hunt for the nest nearly an hour before I found it, being satisfied from their actions that it was there, though very hard to find. The moment I saw it the young flew out in all directions, and their parents seemed more alarmed than ever.

"On May 20th I discovered another nest on the very summit of the mountains, probably a second laying, as it contained but three eggs. It was slightly sunk in the ground under a fern (*Pteris*), and formed like the other, but with less moss round the edge; some cow's and horse's hair was also used in the lining. The eggs were bluish-white, with blackish and brown spots of various sizes thickly sprinkled on the larger end, measuring 0.74 by 0.60. According to Heermann, they build in bushes.

"The only song of this species is a faint trill, much like that of the Chipping Sparrow (*Spizella socialis*), delivered from the top of some low tree in March and April. At other times they have merely the sharp chirp or call-note by which they are easily distinguished from most other Sparrows. Though migrating so far south in winter, they also remain during winter at least as far north as the Columbia River, frequenting the vicinity of houses and barns, in great numbers, especially when the snow is on the ground, and then meriting the name of their Eastern cousin, which usually appears in the United States only in the season of snow.

"They probably raise two broods in this State, and at Puget's Sound I have seen young fledged as early as May 24th.

"According to Dr. Coues, this species is an exceedingly abundant winter resident in Arizona, arriving at Fort Whipple early in October, and becoming very numerous in a short time. They remain until the middle of April, and stragglers are even seen until May, keeping quietly hidden in out-of-the-way places, like the Eastern Snow-bird, until cold weather sets in, when they become very familiar, and are to be seen everywhere."

It seems certain that this species must have been occasionally imported as well as the Eastern form, for at the end of March, 1902, I had a male sent to me in

the flesh for identification. I am afraid that I assumed it to be *Junco hiemalis*; but fortunately, as it was in good condition, I had it made into a skin, and I now see that it is palpably the Oregon Snow-bird.

CHIPPING SPARROW (*Spizella socialis*).

Above, back and mantle reddish brown streaked with black and with pale edges to the feathers; lower back and rump ash-grey; lesser wing-coverts brownish ash; median and greater coverts blackish; paler and more rufescent outwardly, whitish at tips; remaining wing-feathers deep brown with paler edges, rufescent on the secondaries; upper tail-coverts dull brown with ashy edges; tail-feathers deep brown with ashy edges; crown of head cinnamon reddish, streaked indistinctly with black on nape, which is slightly greyer; forehead black divided by a whitish line; lores, eyebrow-stripe, and feathers round eye white; ear-coverts pale ashy edged above by a brown line; cheeks and sides of neck whitish, throat and chest pale ashy; breast and abdomen whiter, under tail-coverts white as well as under wing-coverts and axillaries, the base of feathers dusky; sides, flanks, and thighs pale grey-brown; flights below dusky whitish along inner edges; beak black; feet pale brownish, toes darker; irides brown. Female with rather less cinnamon reddish on the crown, which is also somewhat more streaked with black; apparently (judging by measurements in Museum Catalogue) the wing and tail are longer than in the male. Habitat, North America, northward to the Great Slave Lake, southward to Mexico.

J. G. Cooper ("Ornith. Calif.," Vol. I., p. 208) observes:—"They spend the summer, and build in all the northern half of the State, preferring the vicinity of oak-groves and gardens, coming familiarly about the doorstep to pick up crumbs, and building their nest in low branches of fruit-trees or garden shrubs. It is neatly formed of grass, rather thinly interwoven, and lined almost always with horse-hairs. The eggs are four or five, bright greenish-blue, with a few light and dark brown spots, chiefly at the larger end. They raise two or even three broods annually, in the Atlantic States.

"The only song of this bird is a low trill, usually heard from the top of a tree during the still warm morning.

"In autumn they collect into large flocks, and frequent open woods, pastures, etc. I found flocks of them on Catalina Island in June, but could discover no nests, and, as they were all old birds, concluded that they for some reason had forgotten to migrate.

Russ says that this again is one of those Sparrows which is imported now and then, although it is truly neither generally nor greatly beloved. He furthermore tells us that it has been sold singly by Mr. C. Reiche, Miss Chr. Hagenbeck, E. Geupel, and others, but one could hardly secure a pair for the birdroom, and he excuses himself for describing it in detail on the plea that it will answer for a general portrait of others subsequently briefly referred to. The one weakness in this most praiseworthy aviculturist was that when dealing with soberly-coloured birds he was apt to consider them beneath the notice of bird-lovers, overlooking the fact that a knowledge of the life-history and habits of a dingy bird is scientifically of as much importance as that of the most gorgeously-coloured one.

The Chipping Sparrow has been exhibited at the London Zoological Gardens. I should feed it and all the sparrow-like Buntings in the same manner as the species of *Emberiza* or *Fringilla*.

The Pigmy or Field Sparrow, *Spizella pusilla* (from the Eastern United States, Southern Canada, ranging

into Mexico), is said by Russ to have been once imported by Mr. Möller, of Hamburg; therefore he says it can have little interest for aviculture. If there were any prospect of it coming to hand again I should not agree with him, but I fear that the present stringent laws for the protection of North American birds render that in the highest degree improbable, and therefore I will not describe it.

VESPER SPARROW OR BAY-WINGED BUNTING.
(*Pooecetes gramineus*.)

Above, ashy-brown streaked with black, most broadly on back, less distinctly on nape and rump; lesser wing-coverts cinnamon, blackish at base; remainder of wing and tail dusky, the feathers with pale greyish-brown edges, the median and greater coverts with dull buff-whitish tips; outermost tail-feather mostly white, with an oblique blackish mark along the inner web; second feather with the end of the outer web white-edged; lores, eyelid, and an indistinct eyebrow streak extending above the ear-coverts sordid whitish with ill-defined dusky streaks; ear-coverts browner, margined above and below by brownish streaks; cheeks buffy-white, forming a moustachial streak, and separated from the throat by a macular dusky-blackish line; under surface white, the chest, sides, and flanks washed with buff and with dusky streaks or spots; under tail-coverts unspotted; flights below dusky, dull buffish along the inner edges; upper mandible brown, lower flesh-pink; feet pale brownish; irides brown. Female said to be identical. A comparison of the beaks from above will probably show that in the male it is much more bell-shaped than in the female. Hab., "Eastern North America to the Plains, from Nova Scotia and Ontario southward; breeds from Virginia, Kentucky, and Missouri northward" (A.O.U. Check-List); "south in winter to Gulf Coast (Florida to Eastern Texas); casual in Bermudas" (*Ridgway*).

J. G. Cooper says ("Ornith. Calif." Vol. I., p. 187): "I found this bird wintering in the Colorado Valley in considerable numbers, but it disappeared by April. I have not seen them near the coast, and they seem to seek the interior valleys chiefly in summer. Their favourite resorts are grassy meadows and open woods or orchards, where the grass grows high; they also seek food along roads when migrating. I am not sure whether they breed in this State, but think they do towards the north. Their nests (in the East) are built on the ground, under tufts of grass, and usually sunk below the surface; they are formed principally of withered wiry grass, lined with softer grass and hairs. The eggs, four or five, are white, with several shades of dark reddish-brown scattered in spots, chiefly at the larger end. They probably raise several broods annually, and do not migrate much from the middle Atlantic States (*Nuttall*).

"Their song is quite frequent, and resembles that of the Canary, though less loud and varied. They also sing sometimes late in the evening. They feed much along roads, and are fond of dusting themselves in such places, running along instead of flying when followed."

Dr. Russ says that this species was imported once by Reiche and then also by Geupel; it may yet come to hand from the Bermudas, or even Mexico, since this species is recorded as having occurred at Oaxaca, in Western Mexico. *Ridgway*, however, regards the western and southern form as referable to a distinct sub-species on very slight characters; he, moreover, even distinguishes two forms in California. I wonder

how many sub-species we could make out of our House-Sparrow; it varies considerably in size, length of wing, and colouring!

SANDWICH BUNTING (*Passerculus sandwichensis*).

Above, ashy-brown, distinctly marked with pale-edged black streaks; wing-feathers pale brownish, with dusky centres; tail-feathers dull ashy-brown, with pale ashy edges; crown with a narrow central pale sordid grey stripe; forehead and sides of crown blackish; nape somewhat more ashy; lores, eyelids, and an eyebrow stripe pale yellow; the last-mentioned becoming white at back; ear-coverts pale reddish brown, with a black spot behind and a black margin below them; cheeks dull white or pale buffish, separated by a line of more or less connected blackish markings from the throat; under surface white (more buff-tinted in winter), the sides and flanks streaked with blackish, tinged with reddish, triangular on the breast; thighs reddish-brown; under wing-coverts and axillaries ashy; flights below dusky, with ashy inner margins; beak dusky above, pale brown below; feet pale flesh colour; irides brown. Female not differentiated, but doubtless easily distinguished by the more regularly conical outline of the beak when viewed from above. Hab., North America generally; Mexico to Guatemala; the islands of Cozumel and Jolbox; Bahamas.

This variable species has been sorted out by Professor *Ridgway* into four sub-species, but Dr. Sharpe says he has failed to find, in the series at his disposal, the definite characters laid down by American authors.

J. G. Cooper ("Ornith. Calif." Vol. I., pp. 181, 182) recognises a distinction of size between the two sub-species *P. sandwichensis* and *P. alaudinus*, but admits that, so far as he observed, their habits did not differ. Under *P. alaudinus* he publishes the following notes: "At the Columbia River I noticed the arrival of this species from the south in March, and that they resided there until late in October. In this State they seem chiefly winter residents, abounding on the dry interior plains as far south as San Diego, where they remain until April in large flocks. I have not seen them during the summer months, though they very probably breed in some of the higher prairies of this State, yet I saw none about the summits of the Sierra Nevada in September. They prefer the dry, rolling plains to marshes, although occasionally found in the latter."

"The song of this bird is faint and lisping, delivered from the top of a tall weed, during spring. Its nest is unknown, but *P. savanna* builds in the grass, and lays pale greenish eggs, slightly spotted and splashed with pale umber (*Nuttall*)." Dr. Sharpe does not distinguish *P. savanna* as a species from *P. sandwichensis*, but Dr. Russ keeps the two separate in his book. He says that *P. savanna* is one of the birds usually met with in the bird-market, but of *P. sandwichensis* that it has only reached the Hamburg Zoological Gardens. Of the typical Seaside Sparrow (*Ammodromus maritimus*), Russ says: "It has no song, and, apart from that, as it has never reached us in any numbers, it is of no importance for aviculture." That would not prevent me from including it if there were any reasonable prospect of it coming to hand at all, but under the present condition of American law this is most unlikely.

MANIMBE SEASIDE SPARROW (*Ammodromus manimbe*).

Above, ashy-grey, streaked with black, the streaks in winter with rufous edges; nape and rump less

streaked; lesser wing-coverts greenish yellow, brighter on edge of wing; median and greater coverts black, with ashy margins and whitish tips; flights dusky, with ashy margins, inner secondaries, with rufous margins; tail-feathers similar to flights; lores whitish, above which is a line of yellow passing into a pale ashy eyebrow stripe; feathers round eye whitish; ear-coverts and sides of face ashy; the former bounded above by a black line and behind by a black spot; throat ashy whitish, greyer on sides of neck and streaked with black; lower throat buffish; centre of body below white; sides, flanks, and thighs brown; under tail-coverts pale buffish; under wing-coverts and axillaries whitish, yellow near edge of wing; beak grey-brown, fleshy white at base of lower mandible; feet pale fleshy brown; irides yellowish-brown. Female not differentiated, but doubtless differing in outline of beak as usual. Hab., South America, from Guiana, Venezuela, and Colombia to South Brazil and Bolivia (Sharpe).

Messrs. Sclater and Hudson unite *A. peruanus* with this species, and observe ("Argent. Ornith.," I., p. 61): "Many years ago I first noticed it on the pampas north of Buenos Ayres; afterwards I found it in the immediate neighbourhood of that city; then it began to spread over the plains to the south, appearing every spring in greater numbers, but it is still far from common. It has, I fancy, a limited migration, as I could never find one in winter. It is solitary, and frequents open plains and fields; lives on the ground, and never alights on a tree. The male has a favourite perch, a tall weed or post, where he spends a great deal of his time, repeating his song at intervals of half a minute; it is short and pleasing, and has a slight resemblance to the song of the Yellowhammer, but is more delicate and melodious. When approached, the bird flies down and conceals itself in the grass."

H. von Ihering (*The Ibis*, 1901, p. 13) says that the egg of this species "has been described several times, but always wrongly." Mr. J. G. Kerr (t.c., p. 223), speaking of birds observed on the Gran Chaco, says "Common, January, 1897."

This is all that I have been able to discover respecting the life history of *A. manimbe* from an examination of numerous books in my library. Specimens from Venezuela were presented to our Zoological Society by Capt. Albert Pam in 1906.

Of the so-called Swamp-Sparrow (*Melospiza georgiana*), Russ says: "Formerly it was imported several times by Guder, but is of no significance for aviculture." It is not likely to come in future, and therefore may be passed over.

MELODIOUS SPARROW* (*Melospiza fasciata*).

Above, brown, streaked with black on mantle and upper back; the feathers internally edged with ashy and externally with chestnut; lower back and rump more ashy and more distinctly streaked; lesser wing-coverts rufescent; median coverts dark brown, with rufescent borders and ashy edges; greater coverts rufous, tipped with whitish, and enclosing black spots towards the tips, like the inner secondaries; remaining flights blackish-brown, rufous externally, whitish towards end of primaries; upper tail-coverts rufous-brown, edged with ashy and streaked

with black; tail brown; the centre feathers with black shaft-stripe; the remainder with pale rufescent edges, outer feathers paler at tips; crown streaked with black, ashy in centre, chestnut on each side, lores, feathers in front and below eye, and a broad eyebrow-stripe creamy white, the latter more ashy at back; ear-coverts ashy-buff with paler shafts; a chestnut streak along upper edge; a second chestnut streak separating them from the cheeks which are ochraceous; the latter separated from the throat by a broad chestnut tinted black streak; sides of neck ashy narrowly streaked with black; under surface white, the throat very slightly spotted with dusky; the breast rufescent with large triangular black spots; sides and flanks yellowish streaked with chestnut and black; thighs brown; under tail-coverts yellowish, with dusky centres; under wing-coverts and axillaries whitish, ashy at base; flights below dusky, the inner margins rufescent; beak above dark brown, below bluish; feet pale brown; irides hazel. Hab., Breeds throughout the temperate North America, including the plateau of Mexico (Ridgway); Colorado, Utah, Nevada, and northward.

According to both Sharpe and Ridgway *M. fallax*, *M. heermanni*, and *M. rufina*, which J. G. Cooper keeps separate in his work on the Ornithology of California, are only sub-species; I therefore quote the following notes on the wild habits of the species from his account of *M. heermanni*: "This species is the representative of the genus in all the southern half of California, except Colorado Valley, being found in every locality where there are thickets of low bushes and tall weeds, especially in the vicinity of water, but coming familiarly about gardens and houses if unmolested by its enemy the cat. Their usual resort is on the ground under the shade of plants, where they industriously scratch for seeds throughout the day, rarely flying more than a few yards, and never deserting their homes from one end of the year to the other.

"Occasionally, especially in spring, they perch on some low bush or tree and sing their lively and pleasing melodies for an hour at a time, each song being a complete little stanza of a dozen notes, and frequently varied or changed entirely for another of similar style, but quite distinct. There is no difficulty in distinguishing their songs when once heard, although no two birds sing precisely alike. There is a similarity of tone and style in all the species of *Melospiza* proper, that has led former observers to consider them as if only one species, when taken in connection with their similar colours and habits.

"The nest of this species I cannot positively describe, though I found one at Santa Cruz in June, which I have little doubt belonged to it. It was built in a dense blackberry bush, about three feet from the ground, formed of a thick wall of grasses and bark, lined with finer grasses. There were but two eggs, smoky white, and densely speckled with dull brown. I waited for more eggs to be laid, but on my next visit found that it had been robbed.

"*Zonotrichia guttata*," cf. Heermann, P. R. Rep. X., VI., 47, refers chiefly to this species, which he collected in Tejon Valley, while he did not obtain the true *guttata* (*rufina*). "Though this bird was abundant around Santa Cruz, I only found two nests, after much searching. The first, built on a willow, close against the tree, and three feet from the ground, contained four eggs partly hatched on May 11th. (I had seen newly fledged young on the 7th.) It was composed of coarse dry stems and leaves, lined with finer grass and horsehairs, outside five inches wide, four high, inside two and a half wide, two deep; eggs pale green,

* Ridgway makes this one of twenty subspecies of *M. cinerea*; he admits that there may be connecting links, and probably are, between these named forms, indeed he knows there are in many cases; if so their separation one from the other seems to me much like sorting marbles by their tints; I fail utterly to see how it benefits science.

blotched and spotted with purplish-brown, chiefly at the large end; their size 0.62 by 0.82 inch. The ground colour is paler and spots darker than those of *Z. gambelii*, and the whole colouring much darker than those of *M. fallax*. This was probably an old nest used for a second brood.

"I found another similar nest, also with four eggs, in a thicket, six feet up, as late as July 10th, doubtless a second brood."

Russ says that this species is not quite so rare in the trade as its allies and at times several specimens or pairs are imported by all the principal dealers who introduce North American birds into the market. He recommends anyone who wishes to get satisfaction from this "Sparrow" to keep it by itself in a small cage, where he can hear it industriously singing its undoubtedly pleasing song. It is quite possible that specimens of this bird may yet be imported from Mexico: as a cage-bird well-known on the Continent I could not well omit it.

FOX SPARROW (*Passerella iliaca*).

Above variable; either olive-grey with the crown more or less tinged with chestnut, the back and capulars broadly streaked with the same, and the lower rump and upper tail-coverts reddish chestnut; or nearly uniform reddish chestnut; wings dusky brown; wing-coverts chestnut, slightly paler at tips; inner webs of flights and tail-feathers paler than the outer webs, those of secondaries slightly reddish; inner webs of tail-feathers dusky brown; sides of head chestnut above ear-coverts and sides of neck varied with greyish-olive; below white, the sides of throat, chest and flanks broadly streaked with reddish chestnut; beak dark brown, black at tip, yellow at base of lower mandible; feet flesh-coloured; irides deep brown. Female not quite so strongly marked, especially on the head; the markings below darker, blackish on breast and flanks. Hab., Eastern N. America, west to the plains and Alaska (valley of the Yukon to the Pacific), from the Arctic coast south to the Gulf States. Breeds north of the United States, winters chiefly south of the Potomac and Ohio rivers (A. O. U. Check-List).

In the "Ornithologist and Oologist," Vol. IX., p. 22, Mr. Averill writes:—"The Fox Sparrow (*Passerella iliaca*) is so early a bird in spring and so late in its autumn migration that its occurrence in New England in winter is nothing very strange, yet in view of the fact that the latest work on New England ornithology (Coues and Stearns) says that we have no information of the bird in winter within our limits, it may interest the readers of the "O. and O." to know that I took a specimen in Bridgeport, Conn., on the 29th of last December. The week preceding had been notable for low temperature and deep snow, but this day was mild and pleasant, and a warm south wind induced me to explore a patch of red cedar trees by the bank of a salt creek. It was here I shot the bird, which on dissection proved to be a male. The gizzard contained fragments of seeds which were kindly identified by Prof. D. C. Eaton of Yale College as seeds of the red cedar." Prof. W. W. Cooke in the following volume of the same publication has some interesting notes on the migrations of this species in the Mississippi Valley (Vol. X., pp. 130, 131).

My library affords me no information respecting the nidification of this species; but it is not very likely that the bird will come into the hands of any of my readers, although two specimens reached the London Zoological Gardens in 1901. It might possibly be brought home by Arctic explorers but it is not probable.

RED EYED GROUND-FINCH (*Pipilo erythrophthalmus*).

Above black; upper tail-coverts with rufescent fringes at the tips; flights with broad white borders; three outer tail feathers increasingly white at the tips from within outwards; chin and throat black like the rest of the head; breast and abdomen white, thighs with the bases of the feathers black; sides and flanks chestnut, the sides of chest with a few dusky spots; under tail coverts pale fawn colour; under wing coverts and axillaries white, with a patch of brown near outer edge of wing; flights below dusky, the edge of inner web ashy; beak black; feet pale yellowish-brown; irides bright red. Female with chocolate on upper surface of body in place of black, two central tail feathers also chocolate; the four outer tail feathers white tipped, instead of three; wings brown, instead of black, the primaries white at base of outer web, and the outer ones with a small white marking towards the tip; inner secondaries fringed with reddish, also with a broad white patch on outer web; chestnut on sides of body below paler than in the male. Hab., Eastern United States and Southern Canada westwards to the plains.

Said to be abundant in Eastern Pennsylvania in the spring, arriving in April in flocks, which soon separate into single pairs; it affects thick scrub, grass-covered plains, and moist copses, and one sees it also in a few remote localities, such as in bushes in frequented roads, and here it seems by no means timid. Few of its relatives remain so constantly on the ground as the "Ground Robin" (whence the name); it only perches occasionally upon a low bush, and never upon high trees. Like all its near relatives it indulges in an extraordinary fowl-like scratching. If in calm weather one hears the dry dust in the wood scattering, this is caused by its movements while industriously seeking food under the black-berry creepers and hollies by the hour together. Its flight is low, rustling and undulating. On the earth it moves very actively, running and hopping. The monotonous call-note sounds loudly *ko-reet*; when alarmed it utters the sharp shrill cry *che-wink* thrice repeated. Its song may be rendered in the following syllables: *tut-tit-t' witer-té-té*. Its food consists of seeds, berries, and various insects. Towards the middle of May pairing commences, and nesting in the last third of the month. The nest is placed on the ground at the margins of thickets, among the large quantities of leaves which cover the latter and in a bush. It is industriously built in a few days by both members of the pair; consists externally of leaves, stalks and thin twigs; internally of fibres and bast, and is lined with fine rootlets and larch needles. The eggs, generally four, are round ovals, the ground colour dingy whitish, marked with pale brown dots and spots, chiefly on the broader end. Incubation lasts thirteen days; after about fourteen days the young desert the nest, and then about ten days later they are able to look after themselves; nevertheless they remain together with their parents in families until their departure in the middle of October. Every year they produce only one brood.

I have translated the above from Russ's "Fremdlandischen Stubenvögel, Vol. I., pp. 479, 480; he quotes from Gentry. Russ says:—"From time to time this largest and most stately of all Bunting-Sparrows* appears in the market, and on account of its distinctive size and colouring and its pleasing appearance it always finds ready purchasers. It is a favourite in bird rooms, and is, moreover, not rare in zoological gardens." He

* Why not "Song-Sparrows"? I take it that all the Sparrow-like Buntings having the Whydah-like habit of scratching after the manner of fowls must be nearly related.

says that the wholesale price is 10s. a pair, but singly 15s. to 24s. It has been exhibited more than once in the London Zoological Gardens, but will, I fear, be rarely seen in the future. In the United States it is popularly known as "che-wink," "towhee," or "Ground-Robin."

MEXICAN SPOTTED GROUND-FINCH (*Pipilo maculatus*).

Black, rather browner on lower back and rump; upper back and scapulars streaked with white; wing-coverts tipped with white, conspicuously on median and greater coverts; primaries narrowly edged with white; secondaries with a broad stripe along outer web; upper tail-coverts tipped with rusty-white fringes; four outer tail feathers, with terminal white spot, increasing in width outwardly; throat mottled with white; breast and abdomen white, the latter tinted with tawny; sides and flanks bright tawny; thighs black, with whitish edges to feathers; under tail-coverts paler tawny; under wing-coverts and axillaries white, dusky at base, the latter tinted yellowish; flights below blackish, with ashy inner margins; beak black; feet brownish; irides reddish. Female with the throat and chest more sooty, browner; crown dark brown, usually streaked with black; back and scapulars more olivaceous and therefore less black. Hab., "Central America, from Mexico to Guatemala." (Sharpe).

As *P. megalonyx* from the Rocky Mountain region to California is regarded as a sub-species of the above, I quote the following notes on the wild life, from J. G. Cooper's "Ornith. Calif." Vol. I., pp. 242-3:—"Their favourite residence is in thickets and oak groves, where they live mostly on the ground, scratching among the dead leaves in the concealment of the undergrowth, and rarely venturing far from shelter. They never fly more than a few yards at a time, and only a few feet above the ground. About towns, if unmolested, they become more familiar, entering gardens and making their homes about the houses. They have little musical power, the males merely uttering a feeble, monotonous trill from the top of some low bush. The nest is made on the ground under a thicket, constructed of dry leaves, stalks, and grass mixed with fine roots. The eggs, four or five in number, are greenish-white, minutely speckled with reddish-brown. They measure 1.00 by 0.70."

Russ says that in the course of years the dealer Mieth has on two occasions obtained a single specimen from small dealers at Hamburg, but both died before he had disposed of them. Nevertheless, there is no reason why a bird occurring in Central America should not still come to hand, and therefore I think it better not to pass it over.

BLACK-THROATED BUNTING* (*Spiza Americana*).

Above brown, the crown and nape ash-grey, the mantle and upper back washed with the same and black streaked, the lower back and rump also ashy-brown, but unstreaked; lesser and median wing-coverts chestnut; greater coverts blackish, externally pale rufescent and with ashy fulvous margins; rest of wing-feathers blackish-brown, the primaries with ashy margins, the secondaries with broader rufescent margins; upper tail-coverts and tail-feathers brown, with ashy edges and whitish fringes to inner webs; a pale spot at one-third from tips; front part of crown more or less olivaceous; eyebrow stripe pale yellow, sometimes white at back; ear-coverts ashy, slightly tinted with olivaceous; cheeks white; a yellow mark below eye; sides of throat, chin and upper throat white; centre of throat occupied by a black patch, varying greatly in extent, sometimes continued forward towards chin, and sometimes backward

through centre of breast; sides of fore-neck and breast bright yellow becoming whitish on abdomen; sides ashy-grey, becoming browner on flanks; thighs whitish, yellow externally; under tail-coverts, wing-coverts, and axillaries white, the latter with yellow bases; edge of wing bright yellow; flights below dusky with ashy inner edges; upper mandible blackish, tomium and lower mandible bluish-grey, a black streak towards tip below; feet horn-brownish; irides brown. Female with the crown and nape streaked with black; the mantle and back pale brown, but also streaked; lesser wing-coverts like the back; remainder of wing-feathers blackish-brown, median coverts rufescent at tips and edged with buff-whitish; other feathers with whitish-brown, the inner greater-coverts and secondaries rufescent towards tips; upper tail-coverts and tail-feathers dark brown with pale edges; lores dull whitish; eyebrow stripe ill-defined pale yellow; eyelid whitish; ear-coverts dark ashy-brown with whitish shafts; cheeks white with a yellow spot; throat white with a few black spots; fore-neck and chest yellow, breast ashy-brown, yellowish in the centre; abdomen and under tail-coverts whitish; sides and flanks ashy-brown; lower flanks streaked with blackish; thighs brown; under wing-coverts and axillaries ashy-brown, tinged with yellow; flights below dusky with ashy inner edges. Hab., United States east of the Rocky Mountains; wintering in New Mexico, Arizona, Mexico, Central America to Colombia and Trinidad, occasional in Jamaica and Swan Island.

According to Gentry this bird is tolerably abundant in Eastern Pennsylvania in meadows and uncultivated fields, but always in pairs, not flocks; it is remarkably confiding, so that one can approach it quite closely, when disturbed it soon returns to the same spot. Only before migration does it unite into large flocks, of which, however, other species form the greater number. It flies low, with an undulating and easy movement. Two months after its arrival it sings to us indefatigably from sunrise to sunset at its favourite places of resort. The song is rendered by Wilson as chip-chip-chē, chē, chē, and resembles that of the Yellowhammer. The food consists of all kinds of seeds, berries, and insects, which it searches for on the ground, otherwise it prefers to remain in a bush or on low trees. About the last third of May or the beginning of June, usually five days after pairing, breeding commences. The nest is almost always on the ground, very rarely in a bush; is constructed of various grasses and plant stalks, and lined with fine materials; both sexes build together. The clutch consists of four or five uniformly light blue eggs. The female incubates alone for twelve days. The young are fed with caterpillars, blight, and all other kinds of soft insects. After thirteen days the young leave the nest, and are fed for nine or ten days afterwards by their parents. Only one brood is reared in the year.

Russ says that it comes into the market through Reiche of Alfeld and Miss Hagenbeck of Hamburg, that it first appeared in the London Zoological Gardens in 1873, and has been exhibited several times at the Berlin Zoological Gardens and Aquarium. The usual price of the male is about twelve to fifteen marks; the female is hardly ever imported, and consequently it has not been bred in captivity.

CITRON FINCH (*Pseudochloris citrina*).

Above olive-yellowish; mantle and back broadly marked with blackish brown; wing-feathers blackish with olive-yellow borders; the margins of the inner secondaries somewhat ashy; tail-feathers blackish with olive-yellow margins, the two outer feathers with a

* Called "Dickcissel" in the United States.

white patch at end of inner web; crown uniform dull yellow; lores dusky; orbital region yellow; ear-coverts olive-yellow; cheeks and under surface bright yellow, slightly greener on lower throat, sides, and flanks; under wing-coverts and axillaries olive-yellow, dusky at base; flights below dusky, with ashy inner edges. Female browner; the whole upper surface streaked with black; rump paler and more olivaceous; wing-feathers with ashy borders; sides of head uniform brown; body below sulphur yellow, whiter on throat; chest and flanks browner streaked with blackish. Hab., Brazil, Guiana, and Colombia.

So far as I have been able to discover, very little seems to be known respecting the habits of *Pseudochloris*; one species (*P. lutea*) is said to feed upon seeds and buds, but that is the only information that I have gleaned from many books. The genus used to be confounded with *Sycalis*.

Two specimens of this bird, from Venezuela, were presented to the London Zoological Society by Capt. Albert Pam in November, 1906.

GAY'S FINCH (*Phrygilus gayi*).

Mantle and upper back orange-brown, scapulars yellow, suffused with greenish externally; lower back and rump clear yellow; lesser wing-coverts dark greenish-grey, median and greater coverts clear slate-grey, as also the upper tail-coverts; other wing and tail feathers blackish with slate-grey outer margins; back and sides of neck olive-greenish; a narrow frontal line, lores, and orbital feathers slate blackish; ear-coverts, cheeks, and throat paler and more pearly grey; rest of under surface bright yellow slightly olivaceous below throat and rather paler on lower breast and abdomen; thighs slate-grey; under tail-coverts generally white, the longer ones however with slate-grey centres; under wing-coverts white and axillaries pale yellow, both with ashy bases; flights below dusky, with whitish inner edges; beak lead-coloured, feet brown, irides red to black. Female altogether paler, the flanks ashy-brown. Habitat, Chili, Patagonia, and Argentina. Of specimens of this species obtained on the "Challenger" Expedition, the stomachs were said to contain sand and grubs. (*Vide* P.Z.S., 1878, p. 432.)

Mr. A. A. Lane (*The Ibis*, 1897, pp. 16, 17) says:—"I did not observe these Finches until I went to the province of Arauco, north of which they do not occur on the lowlands; at least, so I was told. They are more plentiful in the south, especially in Chiloe, and on the adjacent mainland. Their local name is 'Chan-chito' ('little pig')."

"They resemble *P. atriceps* very closely, and might be mistaken for them by a casual observer. *P. atriceps* is somewhat larger, and its deep black head distinguishes it, this part being in *P. gayi* of a dark slate-colour. Even their notes appear identical, though I heard the male of *P. gayi* utter a simple melody on a few occasions during summer, which performance I did not notice in the other species. In Southern Chili the present species feeds a great deal on the ground underneath bushes.

"The favourite haunts of these birds are the sides of ravines or abrupt hollows, covered with thick bush of a seed-bearing nature, and small cliffs covered with creepers. They do not occur on open stretches, but are often numerous in partially cleared localities, where copice has taken the place of the large timber previously cut down or burnt. I never could find their nests. I frequently saw them in confinement, in aviaries. When crossing the Andes, from Santiago to Mendoza, I found this bird numerous on the Argentine side, where it feeds on the ground on the barren mountain-slopes."

According to Landbeck, the call-note is *tehip*, and the song *teet twee* often repeated. (See also Crawshaw, "Birds of Tierra del Fuego.")

This pretty species has been exhibited at the London Zoological Gardens.

ORCHARD FINCH (*Phrygilus fruticeti*).

General colour slate-grey; the crown, nape, mantle, and back streaked with black; rump and upper tail-coverts paler grey, the latter with shaft streaks and tips black; lesser wing-coverts black, edged with pale grey; median coverts black, the distal half of the outer web white; greater coverts black, narrowly edged with pale grey and tipped with white; remainder of wing-feathers and tail-feathers black, narrowly edged with pale grey; eyelids white; forehead, lores, chin, throat, and breast black; sides of body, flanks, and thighs slate-grey; centre of abdomen and under tail-coverts white, the latter somewhat buffish, with narrow black shaft-streaks; axillaries slate-grey; under wing-coverts blackish with slate-grey edges; beak yellowish flesh-colour; feet brownish flesh-colour; irides dark hazel. Female with head, neck, and back dull grey, washed with brownish and streaked with dark brown; rump and upper tail-coverts pale greyish-brown; scapulars like the mantle, but edged with rufous; lesser wing-coverts grey; median coverts dark brown with distal half of outer web white; greater coverts dusky, edged with buffish-grey and with tips of outer webs dull white; flights dull brown, with ashy-brownish edges; tail blackish-brown, the outer and two central feathers paler; tips of first to fourth feathers whitish, as well as the base of the outer webs; eyebrow-stripe, lores, cheeks, chin, and throat whitish, blackish at base of feathers; ear-coverts rufescent; malar streak, breast, sides and flanks dusky greyish-brown with fine brown streaks; flanks and under tail-coverts buffish; centre of breast and abdomen white; axillaries and under wing-coverts ashy; under surface of flights brownish; beak brown, paler on lower mandible; feet brownish flesh-coloured; irides brown. Habitat, Andes of Chili and Patagonia, extending to Peru and Bolivia.

Mr. W. H. Hudson ("Argentine Ornithology," Vol. I., p. 54) observes:—"Though not possessing any bright tints, it is a very charming bird, tuneful, elegant in form, graceful and buoyant in its motions. When approached it utters a series of low ticking sounds; and at intervals a peculiar long squealing note. The song of the male is very agreeable, and curiously resembles that of the Cachila Piroit (*Anthus correndera*). It usually sits on a twig near the ground, and at intervals soars up to a height of ten or twenty yards, and utters its song while gliding slowly downwards with depressed wings and outspread tail. It sings throughout the year; in bright weather its notes are heard all day long, but on cold, cloudy, or wet days only after sunset. In the warm season they live in pairs, and in the autumn unite in flocks of as many as two or three hundred individuals, and have a strong undulating flight."

E. Bartlett ("Monogr. Weavers and Finches") quotes the following note by Mr. H. Durnford:—"Common at Chupat throughout the spring and summer, and often seen during our journey in the valleys; it never wanders far from water. On the 20th September I took a nest on the hills near the colony: it was a very neat structure of wool, feathers, and the flowers of a grass, and placed in the centre of a thick bush, about a foot above the ground. It contained two eggs, of a pale green ground-colour, thickly marked with dull chocolate spots and streaks."

The food, according to Prof. W. Nation (*cf.* P.Z.S.,

1881, v. 486), consists of seeds of *Lupinus tomentosus*, but doubtless it also eats insects, and probably other seeds.

According to Russ, this species does well in captivity, and bears the journey to Europe excellently; it has been exhibited at the London Zoological Gardens.

ALAUDINE FINCH (*Phrygilus alaudinus*).

Head, back, chin, throat, and sides of body bluish-grey; rump and upper tail-coverts rather paler; mantle and scapulars broadly streaked with blackish; median and greater wing-coverts and flights black edged with silvery-grey, browner on the secondaries; tail-feathers black, except the two central ones, which are brown; the black feathers with an elongated white patch on the inner webs; the outer ones also with the basal half of the outer webs white; lores black; breast, abdomen, front of thighs, and under tail-coverts white; flights below dusky, with ashy inner margins; beak yellowish-brown; feet pale chrome-yellow; irides dark brown. Female above pale earth-brown, greyish on nape, rump, and upper tail-coverts, streaked throughout with dusky brown; primaries with narrow greyish-white margins to outer webs; greater and median coverts and secondaries darker brown, broadly bordered with buff and pale reddish-brown; tail nearly as in the male, but edged and tipped with silvery-grey; cheeks, sides of neck, and breast pale buff, narrowly streaked with brown; lores, chin, and throat buffish-white; sides of body like the back; abdomen, flanks, thighs, and under tail-coverts white; axillaries and under surface of wing silvery-grey; beak yellowish-brown; feet yellow; irides brown. Hab., Andes of Chili and Peru to Ecuador.

Bartlett ("Monogr. Weavers, and Finches") quotes Mr. Bridges for the following note on the habits of this species:—"This little bird makes its appearance in the summer months; inhabits corn-fields; builds its nest on the ground, and lays four to five whitish eggs with brown spots. The native name is *Pichiquina*." He tells us also that Mr. L. Fraser sent home examples from Cañacali, which is situated at a height of 8,000 feet above the sea-level, where he remarks it was "not uncommon; food small seeds and grubs; lives entirely on the ground amongst the heather; when disturbed, takes an undulating flight for about sixty or eighty yards." H. Whitely, during his travels in West Peru, took the nest near Arequipa in March, 1868, "made of coarse grass, lined with finer grass and placed on the ground in fields of lucerne. The eggs are very like those of our Yellowhammer." This is a very vague description when one remembers the many utterly dissimilar variations of the eggs of that species.

According to Russ this species is easily reconciled to captivity; it has been exhibited more than once in the London Zoological Gardens.

DIUCA FINCH (*Diuca diuca*).

"Above grey, sides of head darker; wings and tail blackish, edged with grey; lateral rectrices tipped with white; below grey; whole chin and throat and middle of the belly white; lower flanks and crissum stained with rufous; bill plumbeous; feet dark hazel; whole length 6.3 in., wing 3.3 in., tail 2.6 in. Female similar, but tinged with brownish, and colours more obscure." (*P. L. Slater*). Habitat, Chili and Western Argentina.

Mr. Ambrose A. Lane, in his "Field Notes on the Birds of Chili" (*The Ibis*, 1897, pp. 19, 20) says of this species: "The sexes are of about the same size, and alike, though as a rule the female is not quite so handsome as the male. They prefer civilisation, and are invariably found about homesteads or tillage. In the

cold season they may often be seen feeding on the ground in large flocks; they separate on being disturbed. They feed on various seeds, especially grass seeds, also berries, etc. About Santiago they nest from the end of September to Christmas, varying further south according to climate. At Valdivia the season is five or six weeks later than as stated above. As soon as the time of year comes on they display a great deal of energy, and, like most Finches, are very active in their nesting operations, and vociferous as well. The nest is sometimes completed in three days or less, according to circumstances, and if the birds are not unsettled or disturbed.

"The nest is placed from 3 ft. to 8 ft. from the ground, and, as a rule, well concealed in a thick bush or branch.

"The eggs are laid to the number of three, being usually completed within two days from the laying of the first egg.

"I found some nests with four eggs, but this is unusual, and sometimes I found birds sitting on two or even one egg.

"Incubation lasts two and a half weeks or more, both birds assisting.

"The young are fed in the usual Fringilline manner, on the pulp from the crops of the parent birds. They attain their full size in about a month.

"The young are browner than the old birds on leaving the nest, which colour they retain for some time, especially the females.

"The usual chirrup of the cock is like that of our House Sparrow, but he outdoes the latter in attaining to a song in the summer. The song consists of a succession of loud clear notes, rather uneven in harmony, and abrupt; but, though it cannot be classed with the performances of other Finches, still it is constantly uttered in a cheerfully boisterous manner, which does a great deal towards enlivening some Chilean localities, where the singing birds are few. This bird is easily kept in cages, and ought to breed regularly in an aviary."

It will be at once noticed that, in this account, Mr. Lane has omitted the two most important pieces of information—the materials and construction of the nest, and the colouring and general character of the eggs; both are frequently omitted in his accounts of bird habits, and reader his notes far less valuable than they would otherwise be. Fortunately, Landbeck has described both nest and eggs. He says: "It breeds on trees and bushes several times in the year, makes a large nest of roots, fibres, feathers, hairs, rags, etc., and lays five or six eggs of a whitish ground-colour, spotted and scrawled over with grey."

This species was bred in the London Zoological Gardens in 1887, and in 1900 Miss Alderson bred it in one of her aviaries. Her birds laid as many as five eggs to the clutch, and she describes them (*Avicultural Magazine*, ser. 1, Vol. VII., p. 181) as "about the same size as those of the Robin; pale blue-green in colour, splashed all over with brown, not unlike a Rook's egg on a small scale."

There is not the least doubt that, as is the case with most Buntings, the eggs vary considerably both in ground-tint and markings.

PILEATED FINCH (*Coryphospingus pileatus*).

Above dark slate grey, paler towards the tail, greater and primary coverts and quills black-brown, greyish externally; tail black, the top of head black with a broad central band of shining carmine feathers, which can be erected into a crest; sides of head more or less

grey, eyelids white; throat, breast, and flanks grey, remainder of under parts white excepting the flights and tail feathers, which are a little paler than above; upper mandible greyish horn-brown, lower fleshy white; feet brownish flesh coloured, iris greyish brown.

The female is slightly smaller and altogether browner than the male, the crest brown. Habitat, Brazil to Venezuela and Colombia.

Nothing is known of the wild life of this bird beyond the fact that it hops about in the shrubs in company with other Finches; it has been once bred in Germany, and Mrs. Howard Williams bred it in England in 1905 in a sheltered garden aviary. The nest was built in a laurel bush upon a foundation of fibre, scraps of paper, hair from a white Pomeranian, fragments of Ostrich feather, and a shaving or two; the open nest was entirely constructed of rope-fibre, with no lining, was barely 2 in. in diameter and shallow. Three large pure white eggs were laid early in July, the first being hatched on the 14th and the two others on consecutive days. On the 23rd one bird had died and been thrown out of the nest, a second had left the nest and could

live many months, having been brought over in open all-wire cages, and evidently exposed not only to wind but to spray from the sea, the wire being quite rusty when the cages reached me.

I found these birds very friendly when associated with hen Pileated Finches, and tolerably confiding as regarded myself; although they seem to have no true song, they are decidedly pleasing birds, their call-note is a soft and rather plaintive *we-tco*.

In their movements when hopping this and the preceding species shuffle their wings, after the fashion of the Superb Tanager or the *Liothrix*. Being Buntings, these birds should not be restricted to a seed diet, but should have in addition a few mealworms or other insects, and a little soft food daily.

We now come to the Cardinal Buntings (the Green and Grey Cardinals of the trade): these birds, I find, do best upon a seed mixture consisting of canary, oats, and hemp, with a little soft food daily and an occasional insect or spider. It has been stated that they are fond of fruit, and I have known *Paroaria larrata* to eat a little apple, but after experimenting with all the imported species I came to the conclusion that none of them really cared for fruit.

GREEN CARDINAL (*Gubernatrix cristata*).

The cock bird has the upper parts of an olive-greenish shade, the mantle being longitudinally streaked with black dashes; the tail bright yellow, with the two centre feathers blackish; the crest, chin, and throat velvety-black; the beak black, with grey lower mandible; a broad streak over the eye, and the sides of the throat bright golden yellow; breast greenish; belly and under tail coverts bright yellow. The hen, which has been said to resemble the cock, is really very distinct; the streak over the eye in this sex is pure white, as are the sides of the throat; the breast is also brownish-grey, and the yellow colouring is less vivid. The iris of the eye in both sexes is very dark, almost black, and the legs are dark grey. Habitat, Argentine Republic to Northern Patagonia.

Mr. Hudson seems to have known nothing about the wild life of this bird, and Mr. O. V. Aplin, in his article on the birds of Uruguay, only says (*The Ibis*, 1894, p. 169):—"I met with this fine bird in the wild state only on one occasion, namely, on the 25th May, a day or two before I came down to the coast, when, riding without a gun at the edge of the monte in the rincón of the Arroyo Grande and the Arroyo Ojormín, I watched a pair at close quarters in a tala bush. They are sprightly, handsome birds, and are sometimes seen in cages," but in captivity it builds a strong cup-shaped nest of about the size of that of our Hawfinch, and lays three or four clear green eggs, spotted (chiefly at the larger end) with purplish black.

The song of the male bird consists of three rather shrill and one lower whistle, followed by a medley of screepy struggling sounds, as though a number of different whistles were wrestling for mastery; it is not at all pretty. The red-headed Cardinals of the genus *Paroaria*, which I presently have to consider, all sing in much the same fashion. In feeding this and the following large Buntings, not only insects, but soft food and fruit (whenever procurable) is sometimes, but not always, accepted.

The Black-crested Cardinal, as this species is sometimes called, is the most docile of the imported representatives of the group, becoming perfectly tame, either in cage or aviary, within a very short time; it is also the most easily bred of all the Cardinals, the only difficulty being to provide living insects wherewith the



HEAD OF PILEATED FINCH (MALE), THE CREST PARTLY RAISED; BEAK OF FEMALE IN PROFILE.

flutter a little, the third left the nest two days later; both birds were reared. A full account of this interesting experience is published in the *Avicultural Magazine*, N.S., Vol. IV., pp. 30-34.

The Pileated Finch appears to have no song; but the beauty of its crest and its confiding nature when caged atone for its lack of vocal merit; its call note is a rather shrill *tsip*.

I found the males of this species less hardy than the females, none of them having survived for much if at all longer than one year, whereas one of my own hens lived about six years.

RED-CRESTED FINCH (*Coryphospingus cristatus*).

Allied to the preceding species, but the male chiefly vinous red with the same silky carmine crest as *C. pileatus*; the female altogether duller and paler, the crown of the head and back pale brown. This bird inhabits Ecuador, Peru, Bolivia, Brazil, Paraguay, and Argentina. In its wild state this bird affects open country dotted with thickets of low scrub, high up in which it constructs its nest and lays three or four white eggs dotted with brown.

This species is but rarely imported, although commonly obtainable in the market at Buenos Ayres; had I not imported the bird myself I should, in all probability, never have purchased it, on account of its usually high price; as it was my three males did not

parents may feed their young after they leave the nest, for they cease to give them prepared food entirely after they fly, and consequently (unless sufficient insects can be provided for a fortnight or so from that date) they must necessarily die of starvation. I lost my own young Cardinals in 1895 from this cause.

YELLOW-BILLED CARDINAL (*Paroaria capitata*).

Above black, with intensely bright carmine head, the black and red being divided by snow-white, and with crescentic marks on the neck narrowing to a point upon the nape; the throat of adult birds is black, this colour tapering downwards to the chest; the under parts are snow-white, the bill and feet ochreous yellow. Female with head of a duller, more brick-coloured red; she is also a trifle larger than the male, and slightly greyer on the mantle; her beak is shorter and tapers more regularly, the base being slightly wider and the point more obtuse.

Young birds are altogether duller in colouring, the red of the head replaced by sandy buff, and the black on the throat by brown; they also have a good deal of slate-colour on the culmen, tip, and tomiom of the beak and on the front of the tarsi. Habitat, Argentine Republic and Paraguay northwards to Bolivia and Matto Grosso.

Although this species is still somewhat rare in skin collections and was extremely rare in living collections at the latter end of the last century, it appears to be very abundant on the banks of the Rio Pilcomayo. Mr. J. Graham Kerr, writing in *The Ibis* for 1892, v. 126, says:—"Equally or even rather more abundant than *P. cucullata*. Especially conspicuous among the bushes upon the river's banks." The same gentleman found it common on the Gran Chaco in 1896 and 1897.

This bird is said to occur in small flocks at Paraná, and is often seen upon the stones at the edge of the river. In spite of its far more vivid colouring, its lack of a crest probably leads the native bird-catchers to give preference to the abundant red-crested species; nevertheless in 1903 an Italian brought a moderate consignment of this species in all stages of plumage into the London market, and I understand that a rather large number arrived in 1907.

In July, 1893, I imported a beautiful adult male of this Cardinal. I found it lively, tolerably confiding, cleanly, and as unmusical in its notes as its commoner and wilder relatives. Unhappily, it was rather short-lived.

Of the consignment which reached London in 1903 I purchased four examples in various stages of colour-growth, and by carefully noting day by day the changes which took place in the colouring of the plumage, of the beak, and of the feet, I proved conclusively (I will not say indisputably, for some men will dispute the truth of anything which they have not themselves observed) that the so-called Brown-throated Cardinal (*P. cervicalis*) was nothing more than an imperfectly matured stage in the colouring of *P. capitata*. All my birds became typical *P. cervicalis* shortly before they acquired their fully adult plumage. The dark tinting of the tarsi, which, I believe, is supposed to be most important, is present in nearly all young birds, and in some is the last juvenile character to disappear, but it always fades out in the end; as a specific character it is utterly valueless.

RED-HEADED OR DOMINICAN CARDINAL (*Paroaria larvata*).

Above pale slate-grey, the feathers of the nape and mantle broadly edged with black, the former more or

less white at base, in some cases white with black borders; wings and tail black, the primaries narrowly edged externally with white, the secondaries with broad external border which is continued round the ends; tail-feathers narrowly edged with ashy, brownish in the female, the outer feathers with white terminal fringes; head all round, chin, throat and centre of fore-chest crimson; a black line bounding the back of the ear-coverts; remainder of under-surface white, washed with ashy on flanks; flights below blackish, ashy on inner edges; upper mandible dark brown; lower mandible yellow with brown tip; feet blackish, slate-coloured; irides hazel. Female rather larger than the male, with rather longer and more tapering beak, the culmen of which therefore appears slightly less arched; the white edges to the primaries seem to be a trifle narrower, but this character may be variable. Hab., Brazil.

Mr. W. A. Forbes (*The Ibis*, 1881, p. 337) says:—"The Red-headed Cardinal I found common at Parahyba, and again saw it in the neighbourhood of Garunhuns, so that it occurs all over the district I traversed. It is usually seen singly or in pairs in the more or less cleared and open ground near cultivation. Many dozens are brought into the market at Recife to sell as cage-birds.

"The Brazilians call it 'Gallo do campina.'"

I have been unable to discover any published account of the nidification of this species in a wild state, but Dr. Russ bred it in an aviary, the pair building in a birch-bush with twigs, strips of paper, moss and reed-leads, lining the cup smoothly with soft grass-stalks, pigs' bristles and worsted. The first clutch consisted of three, and the second of four eggs, which Russ describes as whitish-green, sprinkled with brownish; incubation lasted fourteen days and the young left the nest seventeen days later. The full adult colouring was not attained until the spring of the third year.

I have twice had pairs of this species. The first pair carried materials into a basket and out again, but never formed a proper nest, the eggs were dropped upon the floor of the aviary and broken. Of the nesting of the second pair in my bird-room I have published an account in *The Avicultural Magazine*, n.s., Vol. II., pp. 267-269. The nest was built in April in a shallow box screwed into the wall and forming a support for a mass of brushwood; why so cramped a situation was chosen I could not understand; two eggs were laid and were partly incubated when both parents unaccountably died; the eggs were greenish white, mottled, streaked and speckled, particularly at the larger end with olivaceous-brownish (not pure brownish); they were perfect ovals, otherwise they were not unlike the egg of *Saxicola monticola* as figured in the British Museum "Catalogue of Eggs," Vol. IV., Pl. VII., fig. 12, only paler, more heavily spotted, and the spots more olive in tint.

In an outdoor aviary with plenty of cover there is not the least doubt that this species could be easily bred, provided that abundance of living insect-food could be obtained with which the parents could feed their young. Both my attempts were made in indoor aviaries and therefore failed.

Dr. Russ rightly states that this bird is less spiteful than *P. cucullata*, but I fail to see that there is any appreciable difference between the songs of the two species. It sounds to me like "Chitcherwitchitcherwitcheritchi-chow-cheritcheree," and so on—very harsh, gritty, and ear-piercing. The calls, however, are rather more musical.



(1) VIRGINIAN NIGHTINGALE. (2) GREEN CARDINAL. (3) RED-CRESTED CARDINAL.

RED-CRESTED CARDINAL (*Paroaria cucullata*).

Above dark grey, slightly deeper on the nape of the neck, which is spotted with white; the tail and wing feathers are blackish grey, the latter having pale outer webs; head, crest, chin, and throat crimson; a broad belt behind the cheeks and the remainder of under surface white; beak horn-brown, the lower mandible paler than the upper; feet pale greyish-brown; irides hazel.



THE RED-CRESTED CARDINAL.

Female less pure in colour, and with a narrower, more tapering beak. Hab., South Brazil and Argentina to Bolivia.

In its wild state the Red-crested Cardinal nests in thickets from October to about the middle of November. The nest is said to be formed of twigs, stalks, and vine-tendrils, lined with horsehair, and often placed at the end of a branch of a tala-tree, about eight or ten feet above the ground. The eggs, three or four in number, are white, spotted (especially at the larger end) with greyish green.

The song is similar to that of all the Bunting-Cardinals, tolerably noisy, but screepy and anything but melodious; still, it is a lively and beautiful bird, and therefore a general favourite.

The Red-crested Cardinal is not difficult to breed in a good-sized aviary provided with shrubs; small yew or box trees would be most suitable. Its nest is not unlike that of a Thrush, but looser in character. I have had several of these nests built in twigs nailed on the wall of one of my aviaries, the male bird doing all the work, and the female merely contenting herself with squatting down and shifting a straw or two in the interior. In a day or two the nest would be pulled to pieces and a new one built, but no eggs were deposited. It is probable that the aviary was hardly spacious enough for these highly excitable and nervous birds. In a cage they soon become fairly tame and confiding, but in a moderate-sized aviary they are almost as wild

as Cowbirds; doubtless in a large garden aviary they would do admirably.

At various times I have had a good many pairs of this Cardinal, but its wildness in an aviary has decided me not to have any more to do with it. All the Cardinals, however, make charming cagebirds.

CHAPTER XI.

GROSBEAKS (*Coccothraustine*).

In these birds, according to Dr. Sharpe, the nasal bones are carried backwards to beyond the anterior line of the eye socket, and the angle of the chin is slighter. The mandibles in all these birds are very broad in proportion to their length, although this distinction would not of itself suffice to distinguish them from many other Finches.

The larger Grosbeaks are generally fond of sunflower-seeds, which should certainly be included in their seed-mixtures; as a rule they like green food and soft insects.

VIRGINIAN CARDINAL (*Cardinalis cardinalis*).

The upper parts of the male are principally brick-red and the under parts crimson; a narrow frontal band, the chin and throat are black; the beak red; the iris of the eye reddish-brown; the feet dark greyish-brown. The prevailing colour of the female above is pale olive-brown, below pale buff shading into whitish towards the tail, the webs of the principal wing feathers and the centre of the tail feathers stained with red; the thighs and underside of the wings brighter red; feet pale brown. The young resemble their mother, but are a little paler and duller in colouring.

The Virginian Cardinal is a native of North America; its range extending southwards as far as Nicaragua in Central America; it has eleven slightly modified local races, all of which have received distinctive names. When at home the nest of this beautiful bird is usually built in some low tree, such as a cedar, yew, holly, in a laurel bush or a thorny thicket, and rarely far from running water. The nest is constructed of twigs, strips of bark, leaves, and a quantity of dry grasses, and it is lined with finer grasses; the eggs are oblong oval, white, densely overlaid with brown and pale lavender spots.

The Rev. Hubert D. Astley has given an interesting account of the breeding of an escaped pair of this species at liberty in England; owing to the depredations of either a Jay or squirrel the parent birds were unsuccessful in rearing their offspring, but one of the young birds was hand-reared by the writer.

In an aviary the Virginian Cardinal will either build in a bush, a deep nest-box, or a German Canary cage; the hen sits about fourteen days; both parents feed the young. When breeding the birds should be supplied with plenty of insect-food; but great caution must be exercised as regards mealworms, as these are very stimulating, and, if given freely, the parents will be tolerably certain to brain their young or throw them out of the nest, and then begin to build again. This, like the other Cardinals, is quite a hardy bird, and will stand the worst English winter without artificial heat. On the other hand it will not stand great heat. The last two males which I possessed were kept in a large double flight on a shelf over the door of my conservatory, and one hot day both of them fell from their perches within a minute or two of each other, blood poured from their mouths, and they died almost instantaneously; if kept indoors, a cool shady position should

be selected for them, but an outdoor aviary is the proper place for them. One of my earlier purchases of this species lived for many months in an aviary of this kind.

The great objection to an outdoor aviary in winter is the necessity to visit it at this inclement season in order to look after the needs of its inmates. I found the best seeds for this Cardinal to be maize, hemp, oats, sunflower, rape, canary, and millet; but fruit, green-food such as chickweed, and insects are requisite to keep it in good health.

VENEZUELAN OR PURPLE CARDINAL
(*Cardinalis phaniceus*).

Above dark vermillion, becoming clearer towards rump and upper tail-coverts; lesser and median wing-coverts brighter vermillion but with dusky bases; remainder of wing-feathers dusky, washed with rosy vermillion externally; tail-feathers dark vermillion, dusky towards tips and paler on inner margins; crown and sides of head bright scarlet, the crest tipped with dusky; a narrow frontal line, the lores, a small spot at base of cheeks, and the chin black; under-surface of body scarlet; flank-feathers barred with white; axillaries and under wing-coverts bright rose-red, white at base; flights below dusky, with the inner webs rose-reddish; beak (which somewhat approaches that of *Pyrrhuloxia* in form) leaden greyish; feet bluish leaden-grey; irides clear brown. Female buff brownish above, more ochreous and paler on lower back and rump; lesser wing-coverts like the back; remainder of wing feathers dusky, with the outer edges dull ochreous tinged with vermillion; tail dull vermillion, dusky at tip, with dull ochreous edges to the feathers; crown and nape dull grey; crest dark vermillion, centred and tipped with blackish; lores, eyelid, feathers below eye, and front of cheeks white; ear-coverts dull grey; a spot on cheeks and chin blackish; under surface of body buff, greyish on throat and paler on abdomen; axillaries pale rosy washed with buffish; under wing-coverts pale buff; flights below dusky, the inner webs pale rosy. Hab., Venezuela, Trinidad, and Colombia.

Mr. A. Goering states (cf. P.Z.S. 1868, p. 170) that in Venezuela this species is "found only on the coast, and not met with a few leagues in the interior," and (P.Z.S. 1869, p. 251) he points out that although common at Carupano, it is very rare at San Esteban and he adds:—"I have never seen this bird on the hills, but only on the plains near the coast, which are covered with a simple vegetation of mimosa, cactns, etc."

Mr. E. C. Taylor, in *The Ibis* for 1864, also says much the same thing.

Mr. P. R. Lowe (*The Ibis*, 1907, p. 549) gives an amusing account of the pleasures of a collector of this and other birds at Margarita Island, Venezuela; he says:—"The soil supports a flourishing and homeless tangle of cactus-scrub (*Cereus* and *Opuntia*). Everything, in fact, that grows in this zone is armed with terribly long thorns and prickles. The growth of upright cacti is so thick in places that constant and worrying detours are continually needed to make any progress. We did not forget our experiences of it for many a day. After each excursion ashore quite a long time had to be spent in extracting the poisonous thorns from various parts of our bodies, and some of us suffered from painful abscesses which were long in healing. To retrieve birds in this sort of scrub is often a long and tedious process, and much time is wasted in this way, while the explorer is converted into an animated pin-cushion." The Margarita form of *C. phaniceus* has been separated by Mr. Richmond

under the name of *C. robinsoni*, but Mr. Lowe says that the characters by which it is distinguished are inconstant, the length of the crest being especially variable, and the wings vary also.

I have discovered no notes on the nidification of this species.

Hitherto *C. phaniceus* has rarely been imported as a cage-bird, but in 1877 Miss flagenbeck exhibited one example at a bird-show at Hamburg, and another at the Berlin Exhibition known as "*Aegintha*."

Mr. Astley purchased two specimens in Italy, but they did not live long.

THICK-BILLED CARDINAL (*Pyrrhuloxia sinuata*).

Above greyish-brown, greyer on head and neck; wing-feathers dull reddish at base; front edge of wing, primary coverts and primaries mostly dull red; tail dull deep crimson, dusky towards tips of feathers; central feathers broadly dusky towards base and with greyish edges; crest deep crimson with blackish centres to the feathers; sides of head tinged here and there with crimson; lores and orbital ring dull red; forehead, chin, throat and centre of body below, thighs, under wing-coverts, and axillaries bright crimson; sides of body brownish ashy, buffish behind; flights below dusky, with rosy wash on inner web; beak in summer yellow, in winter horn-coloured, with paler lower mandible; feet brownish; irides brown. Female more buffish generally and less crimson, the crimson of face and body below either wanting or ill-defined, the general colouring of the under parts being buffish. Hab., "Southern border of United States, from the valley of the Rio Grande westward, and southward into Mexico." (Sharpe).

J. G. Cooper ("Ornith, Calif.," Vol. I., p. 237) says:—"This beautiful bird is said to have much of the habits of the common Cardinal of the Eastern States, and the nest and eggs are scarcely distinguishable." Further on, however, he observes:—"Captain J. P. McCown (in 'Cassin's Illustrations') mentions it as a gay, sprightly bird, frequenting damp, bushy woods, generally in small flocks; its voice resembling that of the Virginian Cardinal, which utters a loud, clear whistled note, repeated several times, and varied on different occasions. Our Canada Jay has at times a similar whistle. It is said to be usually very shy, as are the males of all these brilliant songsters. The nest and eggs are yet undescribed."

Russ says that this species has not yet been brought home alive; but most show-frequenterers will call to mind a fine specimen which was exhibited at the Crystal Palace, and I think elsewhere, about the year 1905.

CHINESE GREENFINCH (*Chloris sinica*).

Above chocolate, washed with greenish yellow, rump of the latter colour; outer lesser wing-coverts bright yellow; greater coverts dusky tipped with greyish, the outer ones yellow on inner webs; other wing-feathers black, with both webs golden yellow at base, the flights tipped with ashy whitish; upper tail coverts ashy; central tail-feathers blackish, edged and tipped with ashy; other feathers with the basal half bright yellow, and the terminal half black with ashy edges; crown ashy with a greenish tinge, darker at base of forehead; lores and eyelid dusky; cheeks and throat greenish yellow tinged with grey; centre of abdomen bright yellow, becoming whitish at vent; breast, sides and flanks chocolate, with an ashy suffusion; thighs ashy, washed with yellow; under tail-coverts, wing-coverts, and axillaries bright yellow; flights below dusky, with yellow on inner webs; irides dark brown. Female altogether duller, browner above, the head

like the back, and the rump and upper tail-coverts pale brown; greater wing-coverts black externally, brown-edged, and yellow towards the base; flights black edged with brown, and, with the exception of the inner secondaries, yellow at base; tail with more restricted yellow basal area; face altogether browner than in male; throat ashy-brown; fore-neck, breast, sides and flanks chocolate, with a yellow tinge; centre of abdomen and thighs whitish; under tail-coverts greyer and tinged with yellow; wings below as in male. Hab., "Eastern Siberia, Japan and China." (Sharpe.) Seebohm gives no information respecting the wild life of this bird in his "Birds of the Japanese Empire."

F. W. Styan (*The Ibis*, 1891, p. 353) says:—"This bird breeds at Kiukiang, where I have obtained young and old birds in June. Most of them, however, leave in April and return in the autumn. In winter they are found in flocks all over the hills up to 2,000 feet, but avoid the plains. A good songster."

Frank Finn (*The Ibis*, 1901, p. 435) speaks of this species as the commonest Finch, with the exception of the Canary, kept as a cage-bird in Calcutta.

Captain H. A. Walton, writing on the birds of Peking (*The Ibis*, 1903, p. 27), says:—"This species occurred in large flocks in the Temple of Heaven Park for a few days at the end of January. They were very wild, and kept to the tops of the trees."

Messrs. La Touche and Rickett, describing the nesting of birds in Fohkien (*The Ibis*, 1905, p. 44), give the following account:—"A common resident in the plains. Breeding begins in April, when several nests are often to be found in the same grove. They are usually placed in a pine tree, near the extremity of a branch; we, however, obtained one in a fruit tree, built in the angle formed by a branch with the trunk, and another in Rickett's garden was placed in a similar position in a *Grevillia* (*Grevillia robusta*).

"The nest is always well concealed, and is a beautiful compact little cup, with very thick sides. It is composed of fine twigs, moss, dry grass, pine-needles, roots, fibres, vegetable down, and feathers, lined with very fine dry grass, roots, hair, or feathers. One brought to Rickett was lined with the short curly chestnut and black tail feathers of a domestic cock. These curved over the egg cavity, and at first glance gave the nest the appearance of a domed structure. The measurements are: external diameter, about 4 inches, internal diameter, 2½, outer depth, 2½, depth of cup, 1½.

The eggs are from two to four in a clutch. In shape they are more or less ovate. The ground-colour, when fresh, is a light opalescent green, with a few specks or comma-like markings of black and red of various shades. There are occasionally some pale reddish grey underlying marks.

"Seven eggs in Rickett's collection average .73 by .54 in. Two in La Touche's are much larger, viz., .77 by .56 and .82 by .52."

I well remember when this species was first exhibited at the Crystal Palace that several of the visitors took it for a hybrid between the European Goldfinch and Greenfinch. Later, I believe, the keeper Travers at the Zoological Gardens at Regent's Park, crossed the Chinese Greenfinch with the European Goldfinch, and subsequently produced hybrids between the young and the European Greenfinch; or possibly the two Greenfinches started this combination of three species; anyhow, the first Mules produced were fertile.

BLACK-TAILED HAWFINCH (*Eophona melanura*).

Above dull pale chocolate, paler and more ashy on the rump, and whitish close to upper tail-coverts; lesser

wing-coverts dark brown; remainder of wing-feathers black, glossed with steel blue on coverts and secondaries; tips of primary-coverts and secondaries, and primaries broadly, at the extremities white; upper tail-coverts and tail black glossed with steel blue; head all round black, a diffused ashy belt immediately behind the black; throat and breast tawny brownish, the latter ashy in the centre like the rump; sides and flanks deep tawny; centre of abdomen and under tail-coverts white; thighs brownish-ashy; axillaries and under wing-coverts black, narrowly tipped with white; flights below dusky blackish, with ashy inner edges; beak yellow, the base, tomium and tip purplish shaded with green; feet fleshy white; irides reddish brown. Female paler, the head drab brown, dark grey on the crown; the wing-coverts brown like the back of the neck, the greater series black at tips; primary coverts and bastard wing dark brown, the former blackish and broadly tipped with white; flights black, the secondaries glossed with steel blue; the innermost brown, edged with black and fringed with white, remaining secondaries edged with white at the ends and the primaries for some distance up the outer web; throat and breast drab brown, like the head; the remaining under parts like the male, but paler; beak only lightly suffused with purple at the tips. Hab., Southern and Central China, ranging in summer to North China and E. Siberia, possibly to Japan.

Bartlett ("Monogr. Finches and Weavers") quotes Consul Swinhoe for the following facts:—"Found it on the Amoy in winter," "leaves before summer. Breeds in Shanghai. Very abundant about Canton; evidently breeds there in great numbers. I have not traced it further north; also procured on the Woosung River near Shanghai; at Foochow."

In David and Oustalet's "Birds of China" it is said to be "very common at all seasons in Southern and Central China, and advances in summer in little flocks as far as the northern provinces; every year they catch some of these birds in the environs of Peking, which the Chinese of the capital designate by the name of Hon-cull, and M. Dybowski has sent to the Warsaw Museum an individual of the same species taken in the environs of Alock Bay in Eastern Siberia."

Mr. F. W. Styan, speaking of this species as observed in the Lower Yangste Basin (*The Ibis*, 1891, p. 353), says that it is "a common resident, gregarious in winter."

Speaking of birds collected in Corea (*The Ibis*, 1892, p. 240), Mr. C. W. Campbell says:—"Two immature males shot in July at Chemulpo. Rare"; while in the same volume Mr. La-Touche observes that it occurs at "Foochow and Swatow in winter and spring. It is very abundant all over the country."

In his "Field Notes on the Birds of Chinkiang" (*The Ibis*, 1906, pp. 628-629), Mr. J. D. D. La Touche says:—"It breeds in May and June, generally building in high, or, at least, medium-sized trees, and, as a rule, on a large horizontal bough at some distance from the trunk. An empty nest seen on June 18 was placed in the midst of a creeper in which the branch was partially wrapped up. This Hawfinch seems fond of the company of other birds, often building on trees where Blackbirds and Blue-winged Magpies have their nests.

"I obtained at Chinkiang four nests with eggs. One, containing two stale eggs, was brought to me on June 14, 1903. On May 29 of the following year I took two nests, one containing four eggs, nearly hard-

set, and another three that were fresh, while on June 5 following I found a fourth nest, which, as it contained but one egg, I left alone, sending a man to take it five days later. The two nests taken on May 29 are fairly deep cups, built in two parts. The inner part is a strong fabric of bamboo leaves and coarse grass-blades firmly welded together with mud, and perhaps also with cobwebs; wrapping up the walls of this inner structure is a casing of tendrils and fine twigs or coarse grass-stems, the base of the inner cup having rested on the branch itself. The lining is of slender roots with a few fine bamboo-leaves, and the edge of the nest is rather well finished and rounded off with the material of both the inner and the outer portions. Measurements: inner depth, 1½ and 2 in.; inner diameter, a little under and a little over 3 in.; outer depth, about 3 in.; outer diameter (irregular), 5 in. and above. The nest brought on June 14, 1903, resembles the others, but the outer casing of twigs is missing (lost in taking, no doubt), while a certain amount of wool and a little moss enter into its composition. Its inner measurements are: depth, 1½ in.; diameter, 3 by 3¼ in. The fourth nest, brought to me on June 10, 1904 (said to be the one found by me on the 5th and subsequently deserted), is of a very different appearance. The materials are much the same as those of the other nests, but the bamboo-leaves composing the inner cup are not welded together and are quite loose, the outer casing of twigs is under as well as round this inner cup, which is shallow. It seems to have been knocked about.

"The eggs taken on June 14, 1903, and the incubated clutch of four taken on May 29, 1904, are of a broad ovate shape and are coloured light olive-green, with roundish and drop-like surface spots and twisted broad lines, and a few hair-lines of very dark brown (the lines beginning or ending in the spots) and shell-spots and lines of very dark dull violet-grey with fainter lines of the same. These markings are distributed pretty well all over the shell. Measurements vary from 0.87 by 0.71 in. to 0.94 by 0.74 in. (average 0.91 by 0.73 in.). The three fresh eggs taken on May 29 are of a long ovate shape. The ground-colour is a light greyish-green; the spots and lines are very dark and almost confined to the broad extremity. Measurements 0.97 by 0.68 in., 0.97 by 0.67 in., and 0.93 by 0.69 in. The single egg brought to me on June 10 is very large: 1.01 by 0.74 in. It is of a long ovate shape, and resembles those last described. The marks are chiefly confined to the broader half of the shell."

This handsome Hawfinch, according to Russ, is rarely imported, but Bekemanns, of Antwerp, receives it occasionally, though always singly; he, however, remarks that it has been represented several times in the London Zoological Gardens. The species was exhibited at the Crystal Palace about 1893, in which year Mr. H. R. Fillmer, of Brighton, secured a pair; these birds went to nest in a small aviary in 1894, and partly reared one nestling. Mr. Fillmer recommends as food for this species:—"Canary seed, millet, and paddy; but seems to require a little soft food occasionally; the preserved egg does very well for it, but it should not have too much of this or any other soft food. It is very fond of fruit, and I have never found that any quantity of ripe fruit would hurt a bird. It should also have plenty of green food." I do not know how long Mr. Fillmer's pair lived, but I should certainly give sunflower and hemp-seed with beech-mast when obtainable; I note that Mr. Fillmer says that sunflower-seed was given to the young birds.

JAPANESE HAWFINCH (*Eophona personata*).

Above pale drab or ash-grey; rump washed with rufous-brown; wing-coverts glossy steel-blue, the inner half of greater coverts ash-grey, as also the inner secondaries; remaining wing-feathers black, the primaries crossed by a white belt or patch diminishing on the inner feathers to a small spot on edge of inner web; outer webs of secondaries broadly glossed with steel-blue; upper tail-coverts and middle tail-feathers steel-blue tipped with black; remaining tail-feathers black; crown, lores, base of cheeks and chin glossy purplish-black; ear-coverts, throat, breast and sides pale drab or ash-grey; abdomen, thighs and under tail-coverts almost pure white; wings below brownish-black; beak yellow, with purplish base, washed with green; feet reddish flesh-colour; irides light hazel. Female generally paler and without black on the head; beak entirely yellow. Hab., Eastern Siberia and Japan, ranging to Northern and Western China.

Messrs. Blakiston and Pryer state that this Hawfinch is "found commonly on Fujisan in July, has a pleasing whistle, and is capable of being made very tame."

Bartlett ("Monograph of Finches and Weavers") says:—"Many travellers and collectors have visited the countries inhabited by this bird without obtaining any authentic detailed history of its habits or nidification; it is undoubtedly a peculiar mountainous resident, and is supposed to breed on the highest snow-clad volcanos of Japan and Central China, and must endure extreme cold, from the great altitude at which it has been procured." Russ says that this species unfortunately has only been received by Miss Hagenbeck or Charles Jamrach singly, or at most in pairs; the males which he himself possessed (he only once had a female, which died directly after it reached him) appeared to resemble their relatives in habits and behaviour. Mr. Wiener lost a male from over-feeding, and thinks that this species should not be allowed the run of the bird-room continuously, but at least occasionally isolated and fed sparingly. Russ says that it is a harmless and peaceable bird, but he considers it better suited to zoological gardens than for bird-rooms; he thinks it ought not to be difficult to breed, inasmuch as a pair in the Berlin Aquarium began the construction of a nest. I believe examples of this species were also exhibited in 1893. In captivity it should be fed like other Hawfinches.

BLACK-AND-YELLOW HAWFINCH (*Myceobas melanocephalus*).

Above slate-black, the margins of the feathers paler; inner primaries white at base; inner greater coverts and secondaries tipped with yellowish-white, the terminal spot more yellow and larger on inner secondaries; primary-coverts, bastard-wing, and all the flights with the margins of the feathers ashy-brown; upper tail-coverts and tail black, under surface from throat backwards bright yellow; sides spotted and flanks edged with black; thighs, under wing-coverts and axillaries, black edged with yellow; flights below black, with ashy inner margins, whitish towards base; beak and feet leaden grey; irides brown. Female rather smaller; black above mottled with yellow, the feathers having yellow borders; median and greater wing-coverts and inner secondaries white towards end of outer webs; primaries white at base of outer web, forming a small speculum; upper tail-coverts and tail-feathers black edged with yellow; feathers of crown black, with white bases and yellow edges; lores and eyebrow-stripe yellow, the latter streaked with black behind; cheeks yellow, streaked with black; upper ear-coverts blackish,

followed by a broad yellow band; a broad black streak from angle of mouth; sides of neck and under parts yellow, streaked with black; chin and centre of abdomen uniform yellow; flights below rather paler than in the male. Hab., Himalayas from the far North-west to Sikkim; Manipur in winter; Southern Shan States; wooded mountains of Western Szechuen in Western China.

Jerdon ("Birds of India," Vol. II., p. 887) says:—"According to Captain Hutton this species 'comes to Mussooree in flocks during March and April, and remains as long as it can find plenty of cherry stones to crack, after which it disappears. They have a curious chattering note, and love to sit on the tops of the tallest trees. When at work on a wild cherry-tree they are easily detected by a constant cracking sound of the cherry-stones, which they never break, but open most dexterously at the joining of the valves. The ground beneath the trees is strewn with the opened shells." Lieut.-Col. G. Rippon obtained one example of this species in the middle of April in the hills behind Fort Stedman, in the Southern Shan States, at about 5,000 feet elevation (*The Ibis*, 1901, p. 546), and Lieut.-Col. C. T. Bingham obtained it in April at Huitamaung, Loi Maw range, at 6,000 feet (*The Ibis*, 1903, p. 600).

A female of this handsome Hawfinch was purchased for the Zoological Gardens at Regent's Park in January, 1885; but the species seems to have been rarely imported, and Dr. Russ dismisses it in three and a-half lines: considering its extensive range, it is not at all unlikely to come to hand at any time.

YELLOW-BELLIED GROSBEEK (*Pheucticus chrysogaster*).

Above back, wings, upper tail-coverts, and tail black; mantle with a few yellow spots; median and greater wing-coverts tipped with white; primaries white at base; secondaries with inner web white-tipped; tail-feathers tipped with white increasingly from the centre outwards, the three outermost feathers with the inner web very broadly tipped; head, neck, rump, body below, under wing-coverts and axillaries lemon-yellow; under tail-coverts white; beak and feet dark leaden; claws brown; irides dark hazel. Female altogether paler, with ashy-olive streaked with black in place of the black of the male, much of the yellow colouring paler and washed with olive; flights externally edged with greyish olive; upper tail-coverts ashy; tail-feathers pale brown with ashy edges, the outer one with narrow white edging to tips; lores and eyebrow-stripe, cheeks and centre of under surface bright yellow; thighs ashy; under tail-coverts white; beak dark horn-grey the lower mandible paler with black edges; feet leaden. Hab., Venezuela to Ecuador and Peru.

According to Stolzmann (*Taczanowsky*, "Orn. de Pérou," Vol. III., p. 5), it was formerly "common at Cutervo and nested in the houses. It keeps in pairs in open places such as ploughed fields; it makes havoc in maize-fields. Its song is monotonous. It is often caged. At Cutervo it is known by the name of *Santa Rosa*, at Chachapoyas and Huayabamba by that of *Piuro*."

Mr. W. Goodfellow, in a paper on birds from Colombia and Ecuador (*The Ibis*, 1901, p. 473), says:—"They only come up to Quito during the months of November, December, and January, when they do considerable damage in the gardens to buds and young shoots, which they appear to pull off the trees out of pure wantonness. They feed largely on the seeds of various acacias, both green and ripe. They have loud and agreeable notes, and their flight is clumsy and short. They frequent the Chillo Valley all the year

round, and I often saw a dozen or more together pecking about on the old stone walls around the village of Pio. I found one of their nests at this place in October. It contained two young, and was built on the lower branches of an acacia tree."

This species has been exhibited at the London Zoological Gardens.

GOLDEN-BELLIED GROSBEEK (*Pheucticus auriventris*).

Upper surface, including head, throat, and breast, black; a few ill-defined subterminal white or yellow markings on the feathers of the mantle; lesser wing-coverts yellow; two spots on the greater coverts, and the base of the primaries white; tail with white tips to the three outer tail-feathers; abdomen and under wing-coverts bright yellow; a few black spots on sides; thighs with black bases to the feathers; beak black, with extremity of lower mandible paler; feet black; irides brown. Female similar in plumage, but doubtless differing in outline of beak. Hab., Bolivia, Northern Argentina, Upper Paraguay, and Matogrosso in Brazil. Beyond the fact that it appears to be a forest-frequenting bird, I have discovered nothing respecting the wild life of this Grosbeak; an example from Argentina was acquired by the London Zoological Society in 1904.

ROSE-BREADED GROSBEEK (*Hedymeles ludovicianus*).

The male is an extremely beautiful, though rather large bird. The upper surface is chiefly black, but the lower back, rump, inner median coverts, a series of spots on the tips of the greater coverts, the bases of the primaries, a series of spots at the tips of the secondaries, upper tail-coverts, and inner webs of three outer tail-feathers white; under surface white, a large rose-red patch on the fore neck and centre of breast; sides of body and thighs ashy, spotted with black; under wing-coverts and axillaries rosy; beak white, feet greyish-blue, iris hazel.

The female is quite different, olivaceous or ochraceous brown streaked with blackish; a streak through the centre of the crown, a superciliary stripe, and the lores white, cheeks buffish white; the wings and tail blackish brown, the former with two white bands as in the male; under surface white, buffish on breast and centre of abdomen, breast and flanks spotted and streaked with brown; under wing-coverts and axillaries orange-yellow; beak brown, paler below, feet and iris as in the male.

Hab., Canada, through the Eastern United States, westward to Missouri, and thence south to Texas, Central America, Colombia, and Ecuador; it also occurs in Cozumel, Cuba and Jamaica.

According to Brewer, this bird appears eastward of Massachusetts towards the middle of May and nests in the first week of June in low trees on the borders of woods, preferably in small groves on the banks of a stream. In this manner Allan found it nesting in Canada; the nest is constructed of coarse plant-stalks, bits of leaves, sticks and twigs, with fragments of moss interwoven on the outside; the inside lined with finer materials. It is an open cup containing three to four eggs, which are incubated for fourteen days. Only one brood is reared in the year.

According to Dr. Hov both sexes incubate in turn, and when not sitting the cock sits near the nest singing, and thus renders its discovery easy.

The eggs appear to be pale green or bronzy, irregularly sprinkled with tawny, cinnamon, or rust-reddish spots, and in shape are perfect ovals.

According to some writers who have described the wild life of this bird, its song is full and powerful as that of a Thrush.

Writing from Vermont ("Ornithologist and Oologist," Vol. X., p. 37), C. O. Tracey says:—"This bird is a fairly common summer resident of this locality."

"The sexes arrive together. The male is at once conspicuous, both by his beautiful plumage and melodious song. While essentially a forest bird—and one must see and hear him in his forest home to see his full beauty and hear him in his happiest song—they often come into the orchard and shade trees about our homes. Along the lightly timbered river banks and roadsides they find their favourite breeding places, but these must be at no great distance from the more heavily timbered forest. The forked top of a sapling is usually selected for a nesting place. Sometimes, however, the horizontal branch of a large forest tree is chosen. The nest is a frail structure, made of fine dry twigs and a few grass or weed stalks. Sometimes only twigs are used, and these are nearly always hemlock. It is seldom less than eight, or more than twenty, feet from the ground. The full complement of eggs is usually four, sometimes but three. Dimensions vary from .1 by .75 to .90 by .70 of an inch; colour greenish-blue, spotted with different shades of brown."

"Most of their eggs are laid the first week in June. The earliest and latest dates that I have taken full fresh sets are June 2nd and 23rd. Both sexes incubate, the male performing his full share of this important duty. My records show that where I have made observations in thirty-four cases, the nests were occupied by males twenty-three times and females eleven. By the second week in September they have all departed for the south."

Dr. Russ, who had several pairs and successfully bred the species in his bird-room, tells us that his birds used to breed twice in the spring; he says, moreover, that they build a large artistic nest, as high as possible, in a nest basket or cage; lay almost invariably four eggs, incubated by the hen alone; the young are fed by both parents with fresh ants' cocoons and egg bread, later with egg bread, soaked seed, mealworms, and other insects.

Although I have never seen this bird in captivity in this country, Dr. Russ says that it was annually imported with tolerable regularity by Reiche and Hagenbeck into Germany; though even there it fetched a fairly high price (i.e., from about £1 10s. to £2 14s. a pair). He praises it as an admirable singer, tame, trustful, and easy to breed. It is therefore marvellous, indeed, that so widely distributed a species was not as abundant in our bird-market as the far less satisfactory Virginian Cardinal.

In the autumn the rose-red disappears from the plumage of this bird, to reappear at the approach of the breeding season. This fact, observed by Dr. Russ, has been questioned by scientists.

This species has been exhibited more than once in the London Zoological Gardens.

BLACK-HEADED GROSBK (Hedymeles melanocephalus).

Above black; the feathers of the mantle with a sub-terminal bar of white and pale fawn; lower back and rump uniform fawn-colour; upper tail-coverts tipped with pale fawn; inner lesser wing-coverts tipped with white, and inner median coverts wholly white; greater coverts and secondaries tipped on outer web with white; primaries white at base and edged with white at tip of outer web; outermost tail-feather with a large white spot near end of inner web, the second feather with a smaller spot, and the third with only the fringe white; head all round black, separated from the back by a broad tawny collar; back of cheeks, sides of neck, and under parts deep orange tawny; centre of

breast yellow; centre of abdomen, thighs, and under tail-coverts white; axillaries and under-wing coverts bright yellow; flights below black with a white basal patch; beak olive, fleshy white at base below; feet slate-colour; irides brown.* Female less black; above ashy-brown streaked with black; mantle with tawny or whitish borders to the feathers; rump of a more sandy hue; upper tail-coverts ashy, dusky towards ends and tipped with white; lesser wing-coverts ashy ochreous with dusky bases; median and greater coverts browner and tipped with white; flights dusky externally, edged with ashy; primaries white towards base and end of outer web; inner secondaries tipped with white on outer web; tail dusky, with ashy edges; crown mottled with brownish, blackish at sides, and with a whitish or ochreous central streak, ticked with black; eyebrow-stripe, lores and feathers below eye white; eyelid, sides of face, and ear-coverts blackish-brown; cheeks and under surface pale buffish, brighter on sides and flanks, the former streaked with black; the flanks with finer streaks; centre of breast yellowish; abdomen and under tail-coverts whitish, slightly tinted with fawn; axillaries and under wing-coverts bright yellow; flights dusky, with ashy inner edges.

J. G. Cooper ("Ornith. Calif.," Vol. I., pp. 228, 229) says:—"This fine bird arrives in the State near San Diego about April 12th, and is numerous during summer throughout the mountains, both of the coast and the Sierra Nevada, extending its migrations as far as Puget's Sound at least. They are often kept in cages on account of their loud and sweet song, which resembles that of the Robin, but is louder and shorter. In the coast mountains, in May, their music is delightful, the males vieing with each other from the tops of the trees, and making the hills fairly ring with their melody."

"A nest I found May 12th, at the eastern base of the coast range, was built on a low, horizontal branch of an alder, consisting of a few sticks and weeds, very loosely put together, and with a lining of roots and grass. The eggs were only three, pale bluish-white, thickly spotted with brown, densely near large end, size 0.95 by 0.70. According to Heermann they also build in bushes."

"They frequent the ground in search of food, but also live much in trees, and feed sometimes on their buds. They are not very gregarious, merely assembling in families in the autumn, and, unlike the Evening Grosbeak (*Hesperiphona*), to which they have much external resemblance, do not fly high nor make any sound when flying."

This species was received by the London Zoological Society from Mexico, and exhibited in their Gardens.

NORTHERN BLUE GROSBK (*Guiraca carulea*).

Above bright cobalt blue; mantle, scapulars, and upper back deeper blue, with blackish bases to the feathers; median wing-coverts deep chestnut; greater coverts blackish, washed with blue externally, and frequently fringed with chestnut; flights and tail-feathers blackish, dull bluish externally; the tail-feathers with white fringe at tips of inner webs, becoming more conspicuous towards the outermost feather; a black patch from beak to eye, continued over base of cheeks and chin; under surface brighter cobalt, becoming duller on abdomen, thighs, and under tail-coverts; the latter and vent with white fringes; flights below dusky, with inner edges ashy; beak blackish, tomium and under

*Dr. Sharpe quotes this description of the soft parts as applying to the female only, but in Cooper's description it immediately follows the measurements of the male.

surface of lower mandible bluish; feet black; irides brown. Female above yellowish-brown, with dusky bases to feathers of mantle and upper back; rump and upper tail-coverts greyer brown; lesser wing-coverts bluish grey; median and greater coverts dark brown tipped with ochraceous; inner secondaries edged with the same; remaining wing-feathers dark brown, ashy externally; tail-feathers brown, washed with greyish blue at the edges, the outer feathers with white fringes to tips of inner webs; head and neck yellower than black; feathers round eye paler; lores whitish; body below pale buff, darker on foreneck and chest, and paler on throat and under tail-coverts, which are brown at base; flights below dusky, with inner webs ashy. Habitat, Southern United States from the Atlantic to the Pacific; rarely north to Massachusetts and Maine, according to Coues; throughout Mexico and Central America to Nicaragua and Costa Rica; also Cuba.

J. G. Cooper ("Ornith. Calif.," Vol. I., p. 231) observes that "everywhere a shy and solitary bird, this brilliant songster is rarely seen, although probably scattered throughout California in the warmer months. I noticed the first one at Fort Mojave, May 6th, and afterwards saw many more frequenting the trees and bushes along the river and singing a lively song resembling that of the *Carpodacus frontalis*. I have also seen them at Los Angeles and at Santa Barbara, and they were found at Pit River, in the extreme north-east corner of the State, by Dr. Newberry. Their nest, as seen in the Eastern States, is made in a low bush, and composed of fine dry grass, lined with delicate root-fibres or horsehair. The eggs are about four (bluish-white), and they raise two broods in the season. (Nuttall.)

"They frequent the banks of streams crossing the great interior plains and deserts, where there is little vegetation, except a few bushes, and where such brilliant birds seem quite out of place."

Dr. Russ muddles up his account of this species with that of *G. cyanea*, so that it is difficult to tell which species he is talking about, but I think it is evident that a pair which nested in his bird-room belonged to *G. cyanea*. Examples of *G. carulea* have been exhibited at the London Zoological Gardens since 1862; a specimen was purchased by the Society in 1883, and there have probably been others, but it is likely that most of the examples sold as *G. carulea* are really *G. cyanea*. A female brought to me in 1897 certainly belonged to the latter species; it arrived in a consignment of South American Grosbeaks, Song Sparrows, etc.

LAZULINE GROSBEAK (*Guiraca parellina*).

Above, dark indigo blue, becoming bright cobalt on forehead, cheeks, rump, upper tail-coverts, and lesser wing-coverts; wings and tail black edged with bluish; lores black; upper mandible blackish, and lower greyish horn-colour; feet brownish black; irides brown to black. Female earth-brown; long feathers at sides of rump barred near the tips with white; wings and tail dark brown with paler edges; lores dull whitish; under surface dark ochreous brown, the throat, abdomen, under wing-coverts, and axillaries paler. Habitat, Mexico and Northern Yucatan, with adjacent islands.

I can discover no notes on the wild life of this bird, but it probably does not greatly differ in this from its congeners. A specimen from Central America was presented to the London Zoological Gardens in 1895 by Miss E. A. Krumbholz.

SOUTHERN BLUE GROSBEAK (*Guiraca cyanea*).

Deep blue, the lesser wing-coverts deep cobalt; forehead and a tint over the whole head of the same blue;

flights and tail-feathers black; beak and feet blackish; iris brown. The female is brown, with the under parts brighter rusty-brown. Habitat, Brazil, Amazonia, Guiana, Venezuela, and Ecuador.

According to Burmeister, this species is not found in actual forest, but only on the borders of woods, on open levels varied with bush, where the bird is seen solitary, or in winter in small companies. It is a good singer, which one can listen to for a good time when one has the chance to hap upon its favourite resorts, but he says he never met with it in abundance. (Vide "Syst. Ueb.," III., p. 238.)

White found the species not uncommon in Catamarca in hedges and thickets.

W. A. Forbes (*The Ibis*, 1881, p. 335) says:—"It frequents low bushy ground, and is usually seen singly or in pairs. The Brazilians call it 'Azulin.'"

Mr. Graham Kerr found it on the Lower Pilcomayo, "along with other Finches in the brush by the river margin" (*The Ibis*, 1892, p. 125).

I have not succeeded in finding any account of its nidification in a wild state. A pair, however, nested in Dr. Russ's bird-room in 1876. The nest was built in a bush, and was formed like a bowl, of stalks and shavings, lined with moss and cotton-wool. The female incubated, being fed on the nest by the male. The eggs were four in number, whitish, densely spotted with reddish-brown; incubation lasted thirteen days. The young plumage was dull greyish-brown, clearer than that of the female.

Dr. Russ says that this species is quiet, placid, and innocent; very tame either in mixed aviary or bird-room. It requires mealworms, but has a tendency to grow too fat; its song is monotonous, but soft and of pleasant sound.

TROPICAL SEED-FINCH (*Oryzoborus torridus*).

Above, silky black; lesser wing-coverts white round bend of wing; outer webs of primaries white at base, forming a speculum; throat and foreneck black like upper parts; remainder of body below chestnut; thighs black; longer under tail-coverts partly black; under wing-coverts and axillaries white; flights below blackish, with white inner margins; beak black, paler at edges; feet blackish-brown; irides greyish-brown. Female above dark olive-brown, more rufescent on rump and upper tail-coverts; wing-coverts edged with reddish-brown; remainder of wing and tail feathers blackish-brown, with rufescent margins; lores buffish; eyelids whitish; under parts pale cinnamon, darker on cheeks, foreneck and chest; chin buffy-whitish; centre of abdomen and sides paler and yellower; under wing-coverts and axillaries white, slightly tinted with olive-yellowish; flights below dusky, with ashen inner edges. Habitat, Brazil, Amazonia, Guiana, Venezuela, and Ecuador. (Sharpe.)

Burmeister ("Syst. Ueb.," III., p. 240) says that this bird is more at home on open commons than in the vicinity of forest.

I can find no further notes on the habits of this species; but it probably builds its nest in a low bush like its congeners, using dry grass, with finer material for lining; laying two eggs mottled with pale brown and dotted here and there with darker spots and dashes. Dr. Russ remarks ("Fremdl. Stubenv.," I., pp. 560, 561):—"Although it has been represented in the London Zoological Gardens since the year 1860, with us it has been very rare both in animal-gardens and bird-rooms. According to my notes it was imported in 1873 by Mr. Lintz, of Hamburg, in 1875 by Miss Hagenbach, and in 1877 by Mr. Möller, either singly or in pairs. Of two pairs obtained from the last-mentioned Mr. von

Schlechtendal writes as follows:—"They are quiet, peaceful little birds. They despise mealworms, green food, and fruit," sustain themselves solely on all kinds of seeds, and live entirely without song or sound. A male, though weakened with illness, bit me in a very perceptible manner with his short, stout, sharply-pointed beak, when I was obliged to handle it to transfer it to another cage." It has not yet been bred, and take it all round it is of very little interest.

Mr. E. W. Harper offered me a specimen of this rare Grosbeak in November, 1907, and I naturally accepted it with pleasure; it came to hand at 9 p.m. on the 28th.

THICK-BILLED SEED-FINCH (*Oryzoborus crassirostris*).

Black, tips of flight-feathers browner; base of primaries white, forming a conspicuous speculum; under wing-coverts white, black at edge of wing; a blackish spot at base of primaries; axillaries white, excepting a few close to the body. Female brown slightly washed with olive; under surface deep ochreous, paler on the throat, sides washed with ashy-olive; under wing-coverts buffy-white, yellow at edge of wing. Habitat, Amazonia, Guiana, Venezuela, and Colombia. (Sharpe.)

Mr. Salmon, writing of this bird as observed by him in Antioquia, observes:—"Not a common bird here. I have seen but one nest, which was built in a low bush in a wild, swampy place. It was constructed of the stems of coarse grass, lined with a finer kind, and contained two eggs mottled over with light brown with a few irregular blotches and dashes of a darker colour. The female was sitting, and the male perched on a bush at a short distance."

Messrs. Sclater and Salvin describe these eggs as "greyish-brown, indistinctly blotched with lilac-grey, and strongly marked with dark red-brown marks; axis .93, diam. .6."

A fair number of examples of this species also has been exhibited in the London Zoological Gardens. Mr. Meade Waldo says that this bird has a reputation as a songster; two that he had sang a great deal, a low inward song.

JACARINI FINCH (*Volatinia jacarini*).

Silky blue-black; upper scapulars white at base; wings brownish edged with blue-black; under wing-coverts and axillaries white, the outer greater coverts, towards base of primaries, blue-black; flights below blackish, white near base of inner web; beak black, lower mandible greyer; feet dark brown; irides dark brown. Female above earth-brown, slightly ashy on rump; wings blackish-brown with paler rufous-brown edges, excepting the primaries which have ashy edges; upper tail-coverts dark reddish-brown; tail dark brown with paler margins, especially to the outermost feather which is tipped with white; crown of head somewhat ashy; lores and feathers round eye ashy-whitish; ear-coverts brown, cheeks paler; throat dull white with dusky mottling; breast, sides, flanks, and thighs pale sandy brownish streaked with blackish; abdomen whitish; under wing-coverts and axillaries buffish-white, edge of wing with dark mottling; flights below dusky, with hoary inner edge; beak brownish-horn; feet horn-colour; irides dark brown. Habitat, Central and S. America to Brazil, Peru, and Bolivia.

Burmeister ("Syst. Ueb.," III., p. 235) tells us that "in the garden of Mr. Lallemand at the foot of the Corcovado (Laranjeiras) a pair of this species lived and nested. The nest was situated in a coffee shrub about eight inches above the ground, and consisted of chiefly dry air-roots of the very same plant, which were merely

loosely twisted together; at Christmas-time it contained two incubated eggs of a very pale greenish colour, upon which paler and darker grey-brownish pointed spots of moderate size were unevenly scattered, while at the blunt extremity some black spots were visible; they are not quite so large as eggs of the Linnet (*Fr. canabina*) and somewhat narrower. I have heard as little song from the bird as Prince zu Wied; but people are fond of keeping it in cages and feeding it on canary-seed, upon which it often lives for a long time. Like the Buntings, the species seeks its food on the ground, and is known to nearly everyone in Brazil by the name of Jacarini.

Mr. T. K. Salmon (P. Z. S., 1879, p. 507) says:—"This nest is carefully concealed very close to or upon the ground amongst grass or herbage in waste places. It is slightly constructed of dry grass stems, lined with hair, or sometimes with the stems of a small flowering plant.

"The eggs are two in number, pale bluish-white, spotted with red-brown." Messrs. Sclater and Salvin say that the spots are chiefly in a zone round the larger end; axis .7, diam. .55. Russ says:—"I have a pair in my bird-room which I received from Mr. Möller about two years ago. They live in a bush quiet and concealed; yet at the warm season of the year the male comes out regularly late in the evening into the ventilating window and unweariedly utters his song. The latter is indeed no song, but only an extraordinary chirping with a shrill resounding terminal note. One first hears the industrious songster when it is quite dark. In all this time the two birds have never once attempted to nest, and neither in spring nor at any other time have they ever taken notice of one another. There is also a pair in the possession of Dr. Franken, of Baden-Baden, and Count Roedern, of Breslau. In the Zoological Gardens of London the species has been represented since the year 1858, and undoubtedly in the course of time it has been imported now and again; thus I saw a male in the Berlin Aquarium in its early days, soon after it was opened; at that time nobody there knew what it was. It is to be hoped that sooner or later this bird will be bred." ("Fremdl. Stubenv.," I., p. 424.)

Mr. R. A. Todd (*The Avicultural Magazine*, Ser. I., Vol. IV., p. 6) writes:—"I consider myself fortunate in being the possessor of a pair of Jacarinis (*Volatinia jacarini*). The hen seems to be a very rare bird in this country; in colour she somewhat resembles the hen Indigo Finch, though, of course, of a very different build. These are rather shy birds, spending most of their time among any bushes or cover there may be in the aviary, but when moving about have very much the nervous habit of the Waxbills; their tails seem never at rest. My birds have never nested, and from their nervous disposition I should doubt their ever bringing off a brood. . . . They are certainly fond of insects, and always ready for a mealworm or earwig; as regards seed, they seem to prefer canary and Indian millet, and delight in chickweed."

We now come to the *Spermophilæ*, little Grosbeaks, which somewhat remind one of the Mannikins; they are charming songsters, and many of them build the most wonderful lace-like nests of marvellous strength; their food in captivity is very simple, consisting of millet in two forms, canary, and grasses in the ear when obtainable.*

* Mr. Harper, however, writes that "*Oryzoborus torridus* and *O. crassirostris* both eat lettuce, and the latter eats mealworms, at least that is my suspicion."

* In Vol. VI. of "Bird Notes" facing p. 61. is an excellent coloured plate of *Spermophilæ*, figuring one of the commoner and three of the rarer species; all of which, through the kindness of Mr. E. W. Harper, I have had the pleasure of keeping.

WHITE-THROATED FINCH (*Spermophila albigularis*).

The upper surface of the male is mostly grey; the crown and sides of head are very dark grey; the forehead and lores entirely black, and the remainder mottled with black; under surface and a broad collar white; a black belt across the chest; flanks grey; first primary quills with white bases, forming an oblong spot when the wings are closed; beak ochre-yellow; feet grey; iris black.

The female is greyish-brown, with blackish centres to the light and tail feathers, and with the first primaries white at the base, forming an oblong spot when the wings are closed; under surface white with a greyish-brown belt across the breast; beak black; feet greyish-brown; iris black. Hab., Brazil.

Dr. Emil A. Goeldi, in his article on a visit to South Guyana (*The Ibis*, 1897, p. 162), remarks:—"On the assaht-palms, banana-trees, and siribás along the river sat *Spermophila albigularis*, emitting its melodious *fi-fi-fi*."

This is all that I can find published respecting the wild life, but in my birdroom this species constructed, of fine tough fibre, a most delicate, firmly-woven, fairy-like, shallow, cup-shaped nest; or rather I should say that it constructed several in succession, but did not lay in any of them. The species is said to have been bred in Germany, though Dr. Russ omits to describe the eggs, but says that incubation lasts twelve days.

In 1905 the Rev. C. D. Farrar fortunately succeeded in breeding the species, and has described his experiences in *The Avicultural Magazine*, n.s., Vol. III., pp. 358-362; his nest was made in the usual manner, but of fibrous roots, and lined with human hair; it was placed high up in a bush and took three days to complete, and apparently two eggs were laid, hatched and reared. Mr. Farrar describes them as large for the size of the bird, and much like those of the common Sparrow; but as I have previously observed, this, to anyone familiar with the extreme variability of the eggs of our domestic friend, is no description at all. Mr. Farrar's account of the song of this bird is quite incorrect; his cock bird must have been deficient in vocal power. I have a very old male at the present time (1908) which sings all through the summer, year after year; I must have had it for nine or ten years; to my mind the song is decidedly superior to that of the European Goldfinch.

Although pretty in colouring, cheap, enduring, with a sweet little song, this bird is an inveterate bully, especially towards males of his own species or of the nearly related Bluish Finch.

I would strongly caution all bird-lovers not to attempt to keep more than one pair of this Finch in any aviary, and if they could devote a good-sized flight cage to a pair it would be safer for any other small birds which they may have. As a rule, the White-throated Finch confines his murderous attacks to members of his own species, but I had one notable exception whose evil deeds brought him to a bad end, a Weaver having killed him.

HALF-WHITE FINCH (*Spermophila hypoleuca*).

Above dull slate-grey, the mantle with indistinct dusky mottling; wings (with the exception of the lower coverts, the upper tail-coverts, and tail feathers blackish, with ashy margins; a small white speculum at base of primaries; hind-crown and nape mottled like the mantle, but more distinctly; sides of head, excepting the cheeks, ashy grey; the latter and the under surface of body white, but the lower throat, sides and flanks and back of thighs grey; flights below dusky, with the inner webs white at base, otherwise ashy; beak

fleshy red; feet greyish-brown, irides brown. Female olive-brownish instead of slate-grey; wing and tail feathers of a deeper brown, edged with olive-grey; under parts paler and yellower; middle of abdomen and under tail-coverts white; beak reddish-yellowish grey; feet pale-greyish flesh-coloured. Hab., Brazil.

Burmeister says (*Syst. Ueb.*, III., p. 242):—"Abundant on the Campos region of the interior of Brazil, in small companies, much kept in cages on account of its pleasing voice. The Mineiros call the bird *Bico vermelho*."

Mr. W. A. Forbes (*The Ibis*, 1881, p. 336) says:—"This species of *Spermophila* is also common and widely distributed, frequenting grassy or open places, and often coming into gardens. It appears to feed mainly on grass seeds, and is social in its habits. The females are brown. Called by the Brazilians 'Papa Capim'—i.e., grass-eater. This name it shares with *S. gutturalis*."

Dr. Russ speaks of this species as very rare in the trade. A few specimens were imported by the dealer Guder; the late Mr. Wiener also had a specimen in his bird room, and the London Zoological Society since 1875.

GREY GROSBEEK (*Spermophila grisea*).

Above dark slate-grey, slightly brownish on upper tail-coverts; wings, excepting the lesser coverts, blackish, edged with grey; a small white speculum at base of primaries; tail blackish, edged with grey, and the centre feathers washed with the same; head dark slate-grey, with the lores and base of cheeks blackish; body from throat backwards white below, with the sides, flanks and thighs dark slate-grey; flights below dusky, ashy along inner web, excepting at base, where it is white; beak reddish horn-white; feet horn-grey; irides brown. Female pale olive-brown; wings and tail dusky brown; primaries with ashy edges, the other feathers edged with olive-brown; crown of head darker than back; sides of head and under parts yellowish-olive, paler on ear-coverts, cheeks and under surface of body; whitish at centre of breast and abdomen, thighs and under tail-coverts; under wing-coverts and axillaries white, with a slight yellow tinge; flights below dusky, with ashy edges to inner webs; beak black. Hab., "Guiana to Venezuela, Trinidad and Colombia, extending to Panama" (Sharpe).

I have found no notes on the wild life of this little bird, but Dr. Russ (*Handbook*, pp. 131, 132) says that a pair in his bird-room nested with excellent results. The nest was large and flat, formed in a little basket suspended in a bush, of fibres, stalks, and cotton-wool, not artistic. The clutch consisted of three eggs, pale bluish-green, dotted and spotted with brown. Incubation lasted twelve days. Nestling down scanty, white; young plumage like that of the adult female, but more greyish-green. It nested several times with Dr. Yantzen, of Hamburg. Harmless, confiding, and a pleasing songster. Song resembling that of the Wood-lark.

PLUMBEOUS FINCH (*Spermophila plumbea*).

Ashy grey, slightly paler on the rump; wing, excepting lesser coverts, upper tail-coverts, and tail-feathers, blackish, edged with ashy, whiter on edges of primaries; browner on edges of tail-feathers; lores black; ear-coverts and cheeks dark ashy, the former with whitish shaft-lines, the latter with a small white streak at base; lower eyelid white; thighs white in front; centre of abdomen, under tail-coverts, under wing-coverts, and axillaries white; a blackish patch near edge of wing; flights below dusky, with ashy edge to inner web, becoming white towards base; beak blackish; feet dark brownish-grey; irides dark brown.

Female uniform light brown; paler, almost whitish on the vent. (Thorpe.) Hab., Brazil to Bolivia.

"Widely distributed over the Campos region in the interior of Brazil, from St. Paulo up to Bahia, and westward to the foot of the Cordilleras; lives in small companies in open spots, has a pleasant, melodious voice, and is regarded by the Mineiros, who call it "Batativo," as the best songster of the interior. I say the bird alive in Congonhas, in the possession of my host, who regarded it as a great treasure; as, however, it was its moulting season, and moreover winter, the bird did not sing at all so long as I was able to observe it." (Burmeister, "Syst. Ueb.," III., p. 243.)

Mr. W. A. Forbes (*The Ibis*, 1881, p. 336) says that the Brazilians call this species "Patitiva de Parahyba," "and often pay considerable prices for good singers. The song is loud for the size of the bird, and rather pretty, though monotonous." I have discovered nothing respecting the nesting habits.

Dr. Russ says that in the course of time he has on several occasions received a single male or female from Miss Hagenbeck, but could make no observations beyond the fact that the song was in no way remarkable. It has been represented in the London Zoological Gardens since 1870.

There is not the least doubt that individual males of any species of song bird do not sing equally well, and Mr. Forbes' remark that "considerable prices are given for good singers" of this bird shows that it is no exception to the rule; therefore, as with Mr. Farrar's White-throated Finch, we must conclude that Dr. Russ's Plumbeous Finches were poor performers, and did not fairly represent the song of the species.

EULER'S FINCH (*Spermophila superciliaris*).

Above olive green; wings, excepting the lesser coverts and tail, dusky brown edged with olive; median and greater wing-coverts, tipped with buffish white; crown slightly darker than back; lores, a narrow eye-brow stripe and eyelid yellowish white; ear-coverts olive brown, streaked with white; cheeks, throat, and under-surface of body white; sides, flanks, and thighs olive brown; under tail-coverts yellowish, tinged with olive and brown at base; under wing-coverts and axillaries white, edged with greenish yellow; flights below dusky, ashy-whitish along inner edge; beak brownish horn-grey, under mandible paler; feet brownish-grey; irides dark brown. Female darker, the tips of median and greater coverts bright buff; edges of flights more rufescent; eyelid and lores greenish yellow; ear-coverts and sides of face dull olive; throat greenish yellow; breast and sides of body yellowish olive-brown; centre of abdomen yellowish white; under tail-coverts pale brown, yellowish white at tips; beak blackish brown; feet blackish grey; irides brown. Hab., Brazil.

Nothing appears to be known respecting the wild life of this bird—indeed, Russ observes that up to 1874 it was not thoroughly known to students, and had no place in museums, whereas he had already received two pairs from Miss Hagenbeck, and was able to describe it in detail. Russ, however, was unaware that *S. euleri*, described in 1874, was a synonym of *S. superciliaris*, described in 1869, and was therefore known under the latter name.

Although Russ considers the bird quite uninteresting, he tells us that after the first pair had died, the second built a great shapeless nest openly in a bush in his birdroom, and reared one young one, but he was unable to study the breeding, as at the time he was ill. His hopes of a second brood were frustrated by a parrot biting the male bird to death, and he was not able to

replace it. He subsequently saw single examples in the possession of wholesale dealers.

This species also has been exhibited in the London Zoological Gardens.

LAVENDER-BACKED FINCH (*Spermophila castaneiventris*).

Above blue-grey; wing and tail feathers, excepting lesser coverts, blackish, edged with grey; a small white spot at base of outer web of inner primaries; head a trifle deeper grey than the back; a small white spot at base of mandible; throat, breast, and abdomen deep chestnut, with the sides, flanks, and thighs blue-grey; under wing-coverts and axillaries white, grey near edge of wing; flights below dusky, white towards base of inner web; beak and feet brown; irides dark brown. Female, above olive-brown, lower back and rump paler and more rufescent; wing and tail feathers, excepting lesser coverts, dusky brown, with paler brown borders; lores, feathers round eye, ear-coverts, and body below paler brown than that of upper surface; the centre of breast and abdomen, thighs, and under tail-coverts pale buffish; under wing-coverts and axillaries white, tinged with greenish yellow; flights below dusky, whitish along inner edge. Hab., Guiana and Colombia to Lower Amazonia and Peru. (Sharpe.)

Taczanowski gives no account of the wild life in his "Ornithologie de Pérou," and I can find nothing respecting it elsewhere. This is one of the more beautiful of the species of *Spermophila*; it was first imported by Mr. E. W. Harper in 1906, and he presented six examples to the London Zoological Gardens. Mr. C. T. Maxwell possesses a specimen; Mr. W. T. Page, I think, received a pair; and on November 25th, 1907, Mr. Harper very kindly wrote offering me one as a present, together with three other rarely imported species; they arrived on the 28th.

FIRE-RED FINCH (*Spermophila minuta*).

Above brown, slightly olivaceous; lower back and rump chestnut; upper tail-coverts greyish olivaceous, rufescent at edges; wings, except lesser coverts, and tail blackish-brown; the feathers with ashy, whitish or pale brown margins; central tail-feathers somewhat ashy; crown slightly rufescent on forehead; lores dusky, ear-coverts pale olive-brown, with paler shaft-stripes; cheeks with a small white spot at base, otherwise chestnut like under surface of body; thighs rather browner; under wing-coverts ashy, edged with whitish; axillaries creamy white, slightly rufescent; flights below blackish-brown, creamy-white along inner edge; beak blackish, paler at base of lower mandible.

Female earthy brown, slightly olivaceous; wings dark brown, excepting lesser coverts; bastard-wing, median and greater coverts and secondaries bordered with buff; primary-coverts and primaries edged with olive-brown; tail feathers dark brown edged with olive-brown and with pale tips; sides of head and under surface pale buffish brown; the throat paler and somewhat ashy; sides, flanks, thighs, and under tail-coverts bright buff; centre of abdomen creamy buff; under wing-coverts and axillaries bright buff, with ashy bases; flights below dusky, whitish on inner edge. Hab., Panama, through Colombia and Venezuela to Guiana; Trinidad, Tobago, Para. (Sharpe.)

Mr. T. K. Salmon says (P.Z.S., 1879, p. 506):—"Builds in low bushes much the same sort of nest as *S. gutturalis*, but of coarser grass." The eggs, described by Messrs. Sclater and Salvin, are said to be "white, clearly marked with several shades of rich red-brown spots: axis .65, diam. .51."

This is all I can discover respecting the habits.

Mr. E. W. Harper presented four specimens to the London Zoological Gardens in 1906, and one to me in

1907. Mr. Page also had a specimen. It resembles the following species, excepting for the absence of the black cap.

REDDISH FINCH (*Spermophila nigro-aurantia*).

The Reddish Finch is one of the smallest cagebirds; it is cinnamon in colouring, with the crown to the nape black, giving it somewhat the aspect of a miniature Bullfinch, the throat and centre of under surface paler cinnamon than the remainder of the body; the flights are black with greyish-brown borders, the middle primaries white at the base, forming a white patch when the wing is closed; tail feathers black, tipped and edged with pale brown; beak blackish, feet dark brown, iris brown. The female is olive brown, the centre of body yellowish-white, becoming ochreous buff on under tail-coverts; flight and tail feathers brown edged with olive. Hab., Southern Brazil.

Mr. W. A. Forbes (*The Ibis*, 1881, pp. 335-336) says that he obtained this bird at Recife frequenting the same localities as *S. gutturalis* and *S. hypoleuco*. He says "the Brazilians call it 'Caboclo,' a name applied to the tamed aboriginal Indians in Pernambuco. It may sometimes be seen in Recife in cages with crowds of sundry other *Spermophila*, Canaries (*Sycalis*), Cardinals (*Paroaria*), etc."

Burmeister says of it ("Syst. Ueb.," III., p. 251) :—"Common in the whole of Brazil in small and larger flights, especially to be noticed in numbers on the millet-fields; they keep quite quiet; when scared off they fly away without a cry. I have never heard a song, though I have so frequently observed it in the environs of New Freiburg. I also met with the bird at Lagoa Santa."

The nidification appears to be undescribed.

The male is a sweet singer, though not often heard in an aviary; possibly in a flight cage it might be a more frequent performer. It is perfectly harmless, and a great addition to any aviary of tiny song birds. Its habits in a wild state appear to be similar to those of its congeners. It ought to be more freely imported, as it is not a rare bird in Brazil.

This is one of the prettiest and most pleasing, but one of the least freely imported, of the better known *Spermophila*, and therefore is rarely to be obtained at a low price, although I was fortunate in this respect. I picked my bird out of a crowd of *Spermophila* sold indiscriminately at 3s. apiece. I was amused, the year following, to note an advertisement by the same dealer offering a specimen of this rare little Finch for 20s. My bird lived to a great age, but towards the end of its life became slovenly in its toilet, so that its skin was not worth preserving.

COLLARED FINCH (*Spermophila cucullata*).

Above black; scapulars grey; lower back grey shaded with ochreous, which becomes pure ochreous in a belt across the rump; wing-feathers blackish, edged with ashy; inner lesser coverts and tips of inner median coverts ochreous; inner primaries externally white at base; upper tail-coverts blackish bordered with dark grey; tail-feathers blackish edged with brown, paler at tips; lores, a patch below front of eye, cheeks and throat creamy-buff, the latter more ochreous; a half collar of ochreous at sides of neck; a broad black band behind throat, under surface of body behind the black band tawny buff, pale excepting on under tail-coverts; thighs white, black behind; under wing coverts and axillaries white; flights below dusky, white towards base of inner web; beak greyish-horn, blackish at base, yellowish at tip. Female above brown, slightly olivaceous on head and back; wing and tail-feathers dark

brown with paler margins; sides of head and under parts pale tawny buff, paler on abdomen and deeper on under tail-coverts; under wing-coverts and axillaries buffish white. Hab., Northern Brazil to Guiana. (Sharpe.)

According to Burmeister ("Syst. Ueb.," III., p. 248), this bird inhabits the outskirts of woods, especially near settlements. I can find no other note of its wild life.

A pair of this *Spermophila* reached the London Zoological Gardens in 1884.

BLACK-BANDED FINCH (*Spermophila torqueola*).

Above black; lower back and rump pale tawny; inner primaries white at base of outer web; tail fringed at end with pale brown; a white half collar at sides of neck; cheeks and under surface tawny reddish, paler on throat; a black collar behind throat; thighs white, black behind; under wing-coverts and axillaries white; flights below dusky, with ashy edges becoming white at base; beak and feet blackish; irides brown. Female above pale olive-brown, more ashy on head and neck; wings and tail dark brown with olive-brown edges to the feathers; tips of greater wing-coverts and margins of inner secondaries slightly rufescent; sides of head and front of body below paler brown than upper surface; the abdomen, lower flanks and under tail-coverts pale tawny buffish; under wing-coverts and axillaries greenish white; flights below as in male. Hab., Mexico.

I have found no notes on the wild life of this bird; a male was presented to the London Zoological Society in 1895 by Mr. A. J. Chalmers.

SPECTACLED FINCH (*Spermophila ophthalmica*).

Above shining black; feathers of lower back and rump grey, subterminally banded with black and tipped with white; lesser wing-coverts white-edged; greater coverts with a linear white streak at ends; bastard wing, primary-coverts and quills white at base, visible and forming a distinct speculum on middle primaries; a small white spot below eye; cheeks, throat and sides of neck white; a black band behind throat spreading on sides of chest; remainder of under surface white; the flanks slightly mottled with black; flights below blackish with inner edges white broadening towards base; beak and feet probably black; irides reddish. Female above pale brown; head and mantle greyer; median and greater wing-coverts blackish with rufescent pale brown margins; remaining feathers of wing dusky with paler borders; upper tail-coverts and tail-feathers pale brown, with paler margins; lores buffish yellow; eyelid buffy white; ear-coverts, cheeks, and under parts pale buffish-brown, paler at centre of breast and abdomen; sides, flanks, thighs, and under tail-coverts pale brown; under wing-coverts and axillaries white, the former slightly stained with brown. Hab., Ecuador.

Mr. W. Goodfellow (*The Ibis*, 1901, p. 473), in an account of a journey which he took through Colombia and Ecuador, says:—"Very common at Santo Domingo in October, where during the midday hours they assembled in large flocks on the grass around the huts."

This species has been exhibited at the London Zoological Gardens, but it is naturally rare in the bird market.

LINEATED FINCH (*Spermophila lineata*).

Above shining greenish black; the lower back and rump ashy with dusky subterminal markings to the feathers; lesser wing-coverts edged with whitish; median and greater coverts tipped with white, the former broadly; inner primaries white at base of inner web; upper tail-coverts with ashy fringes; tail edged

at end with ashy; lower eyelid with a tiny white spot; cheeks, sides of neck, and under parts white; a black collar and sides of breast; sides of body and flanks ashy; thighs blackish; flights below blackish, ashy on inner edges and towards base; feet fleshy-blackish. Female above olive-brown, yellower on rump; wing and tail-feathers with paler edges; lores and feathers round eye whitish; ear-coverts pale and streaked with whitish; under surface ochraceous, browner on sides and flanks; centre of breast and abdomen yellowish white; axillaries and under wing-coverts white, edged with yellow; flights below dusky, ashy whitish along inner edges. Hab., Guiana and Amazonia.

Burmeister gives no information respecting the wild life, nor can I discover anything in other works. This species also has been exhibited at the London Gardens.

BLuish FINCH (*Spermophila carulescens*).

The Bluish Finch chiefly differs from the White-throated Finch in its slightly inferior size and black chin-patch, but it also wants the white spot on the primaries. Female pale olive-brown; wings and tail darker; below paler tinged with ochraceous; middle of body almost white. Hab., South Brazil, Patagonia, Paraguay, Argentina, and Bolivia.

Mr. Hudson ("Argentine Ornithology," Vol. I., p. 46) observes that "these birds are always most abundant in plantations, preferring peach trees, but do not associate in flocks; they are exceedingly swift and active, overflowing with life and energy, their impetuous notes and motions giving one the idea that they are always in a state of violent excitement. The male has a loud, startled chirp, also a song composed of eight or ten notes, delivered with such vehemence and rapidity that they run into each other and sound more like a scream than a song.* There is not a more clever architect than this species; and while many *Synallaxes* are laboriously endeavouring to show how stately a mansion of sticks a little bird can erect for itself, the Screaming Finch has successfully solved the problem of how to construct the most perfect nest for lightness, strength, and symmetry with the fewest materials. It is a small, cup-shaped structure, suspended hammock-wise between two slender upright branches, and to which it is securely attached by fine hairs and webs. It is made of thin, pale-coloured, fibrous roots, ingeniously woven together—reddish or light-coloured horse-hair being sometimes substituted; and so little material is used that, standing under the tree, a person can easily count the eggs through the bottom of the nest. Its apparent frailness is, however, its best protection from the prying eyes of birds and mammals that prey on the eggs and young of small birds; for it is difficult to detect the slight structure, through which the sunshine and rain pass so freely. So light is the little basket-nest that it may be placed on the open hand and blown away with the breath like a straw; yet so strong that a man can suspend his weight from it without pulling it to pieces. The eggs are three in number, white and spotted with black, sometimes bluish-brown spots are mingled with the black."

Formerly this bird was very rarely imported; but of late years it has come more frequently in consignments from Argentina. In 1893 I imported three males from La Plata; but they suffered from exposure in an all-wise cage during the journey; after their arrival they were much persecuted by my White-throated Finches. Two died in their moult and the third did not live very

long. Not being good songsters they are not likely to become very popular.

GUTTURAL FINCH (*Spermophila gutturalis*).

The male is olive-green above, with a black head; wings and tail greyish-brown, breast and abdomen yellowish-white with a faint greenish cast, flanks greyish; beak silver-grey, feet and iris greyish-brown. The female is dull brownish-olive, paler and more yellow below, the breast slightly ruddy, the wing and tail-feathers blackish, with pale margins; beak horn-grey, feet brownish flesh coloured, iris brown. Hab., Brazil, Guiana, Peru, Ecuador, Colombia, Venezuela, and Panama.

According to T. K. Salmon (P. Z. S., 1879, p. 507) this bird "nests in low bushes. The nest is built at a height of four or five feet, of stems of dry grass rather loosely put together, in which two eggs are laid." Messrs. Selater and Salvin describe the eggs as "pale greenish white, marked with large blotches of several shades of rich brown; axis .7, diam. .5."

Mr. W. A. Forbes (*The Ibis*, 1881, p. 336) says:—"This little *Spermophila* was very abundant in the garden at Estancia, frequenting the reedy and marshy parts, where it congregates in small flocks, feeding on the seeds of the grasses, sedges, and other similar plants. I also saw it abundant afterwards at Quipapá, as well as in the low bush-covered country round Garanhuns, so that it is by no means confined to the seaboard or even to the neighbourhood of water. It is often kept as a cage-bird."

Dr. E. A. Goeldi, writing of birds observed up the Capim River (*The Ibis*, 1903, p. 481), says:—"The small Finches *Spermophila gutturalis* and *S. hypoleuca* constantly sang on the higher branches of the trees around the buildings."

This bird is a good, though not frequent, singer. It is long-lived and not specially quarrelsome. According to Burmeister it frequents open pastures in order to feed on grass-seeds. My second pair of this species died during the cold days of June, 1898, but my first pair lived much longer; the male dying in January, 1901, and the female in February, 1905, having been in my possession since about 1895 or 1896. Judging by its general resemblance to the Mannikins of the Old World, one would suppose that *Spermophila* and *Phonipara* might be the nearest *Fringillidae* to the Finches of the family *Ploceidae* and that the species of *Munia* were the oldest types of that family; if so, they must have given off two lines of descent, the one through the Grass-finches and Waxbills, the other through the Weavers and Whydahs; in the last-mentioned it is strange how the scratching habit of the Buntings of the Song-Sparrow type reappears.

OCCELLATED, OR BLACK-HEADED LINED FINCH (*Spermophila ocellata*).

Above glossy greenish-black; rump crossed by a white band; wings and tail black, with greenish black edges; the inner primaries and inner secondaries white at base of inner web, forming a double speculum; the inner one, however, concealed by the greater coverts; an ill-defined broken white streak in the middle of the forehead; cheeks white, forming a broad stripe; throat and sides of neck glossy black; fore-neck mottled with white; rest of under parts white; the sides and flanks slightly mottled with black; thighs black externally; edge of wing below mottled with black; flights blackish edged with ashy, white at base; beak black; feet dull black; irides dark brown. Female above dull olive-brown; slightly paler on rump and upper tail-coverts;

* Mr. Hudson calls this bird "Screaming Finch."

median and greater wing-coverts paler at tips; rest of wing and tail-feathers dusky brown, with olive-brown margins; lores and feathers round eye bright buff; ear-coverts paler olive-brown than rest of head; cheeks, throat, and fore-neck pale buff; centre of breast and abdomen whiter; sides, flanks, thighs, and under tail-coverts bright buff; under wing-coverts and axillaries slightly more olivaceous; flight a little paler than in male, but similar. Hab., Upper Amazons, Guiana, Venezuela, and Colombia.

I have found no account of the wild life of this species. In 1906 four examples were presented to the London Zoological Society by Mr. E. W. Harper and two by Capt. Albert Pam. In November, 1907, Mr. Harper sent me a specimen as a present. Mr. Page has also had a specimen. The song is low-pitched, commencing with a trill, *pr-r-r-r-it-tit*, and finishing with a *cheer, cheer, chit*; it sounds like a crowd of Sparrows quarrelling in the distance.

LINED FINCH (*Spermophila lineola*).

Upper surface glossy greenish-black, a broad longitudinal stripe on the front of the head, one on each cheek, a spot on the inner primaries forming a small oblong patch when the wings are closed, another on the secondaries concealed by the coverts, the rump and under surface more or less white, beak black, feet leaden grey, iris brown. The female is greyish-olive, the upper darker than the under surface. Hab., Brazil, Guiana, and Venezuela. Inhabits the outskirts of woods, especially near settlements, according to Burmeister; and that is all the information I have come across respecting the wild life.

This *Spermophila* appears not to be very freely imported, and I have never myself seen it at any dealer's. A male was given to me some years ago which sang much in the style of the White-throated Finch, but unhappily it did not live long, and died in poor plumage, so that the skin was not worth preserving.

Weaving Finches (*Phoniparinae*).

I proposed this division of the *Fringillidae* for the genus *Phonipara*, on account of its habit of constructing a globular nest with front entrance, after the manner of the Ploceid Finches; it also resembles many of the latter in its insignificant little song and its sociable habits. (See *The Avicultural Magazine*, n.s., Vol. IV., pp. 153-4.) The genus *Melopyrrha* will also have to be referred to this sub-family.

BLACK SEED-FINCH (*Melopyrrha nigra*).

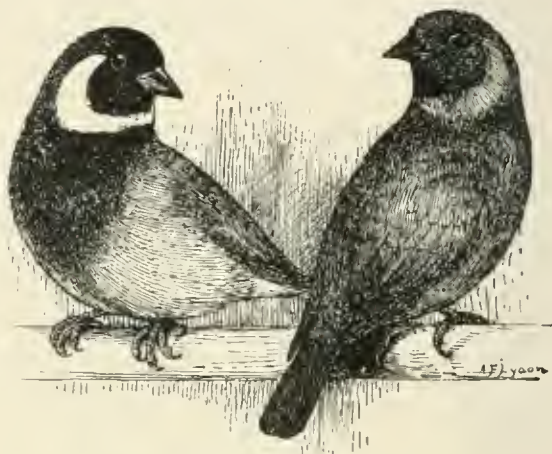
Glossy black; a narrow white stripe down the wing, consisting of the bastard wing, the base of the primary-coverts and the edge of the inner primaries; axillaries and under wing-coverts also white; quills below white along base of inner web. Female of a deeper brownish black; otherwise similar in plumage. Hab., Cuba. Gundlach states that this bird is common in Cuba, living in pairs during the breeding season, but afterwards in family parties in woods and bushes on their outskirts. "Its food consists of various seeds and berries, perhaps also occasionally of insects. In the period between April and July the bird builds a more or less globular nest with side entrance of dry plants and leaves, hair, bristles, little feathers and rootlets, among creepers, on trees, or between the many forks of a branch. The clutch consists of three or four eggs. Its delicate song is admired by the inhabitants, therefore they catch it freely and keep it in cages where they feed upon canary-seed and coarse maize meal. I have also seen an albino

which was not black but coloured greyish white." (Vide Russ, *Fremdl. Stubenv.*, I., p. 559.)

Russ says that up to 1877 this bird was very rarely obtainable from the dealers; in the course of years he only saw one male in the Berlin Aquarium, and received another from the dealer Guderat of Leipzig. Then Mr. Wiener sent him one for identification, and about the same time Miss Hagenbeck of Hamburg received a good number. The London Zoological Society first received it in 1868. It appears to be peaceable and long-lived.

CUBAN FINCH (*Phonipara canora*)*.

The male above is yellowish-green; the base of forehead, sides of face, chin, and throat black, bounded behind by a broad crescentic yellow belt, which extends to above the eye. This is followed by a border of black on the front of the breast; the wing and tail feathers dusky, edged with yellowish or green; under parts slaty-grey, the under tail-coverts tipped with



CUBAN FINCHES.

yellowish white. Beak black; feet light brownish-grey; irides brown.

The female has the face and throat chestnut instead of black, and has the crown of the head greyish brown; otherwise it is not unlike the male. Hab., Cuba.

The species of the genus *Phonipara* build domed nests with entrance tube directed downwards from a hole in the front, constructed of dry grasses with a finer lining often of the same material. These nests, therefore, in every respect resemble those of the true Weaving Finches (*Ploceidae*); they also sometimes lay pure white and unmarked eggs, though at other times the eggs are tinted with bluish-green and speckled towards the larger end with reddish or brown. I have no doubt that they are more nearly related to the Old World Weaving Finches than to any of the true Finches (*Fringillidae*), inasmuch as the supposed absence of the tiny tenth quill which used to be regarded as the most important distinguishing feature between the two families, is a character which at once breaks down upon examination.

The Cuban Finch makes a most attractive addition

* Russ points out the relationship of *Phonipara* to the Waxbills; probably he was thinking especially of *Coccothraustes*: to my mind it is much more like the Grassfinches.



1.—GUTTURAL FINCH. 1a.—DITTO (FEMALE). 2.—LINED FINCH. 3.—REDDISH FINCH.
 4.—WHITE-THROATED FINCH. 5.—BLUISH FINCH.

to a collection of small birds, and lives well upon canaryseed, with white and spray millet. It is said to be by no means difficult to breed, and there is only one thing to hinder its becoming a general pet—it is by no means cheap.

Dr. Russ says that the production of each brood takes four weeks and each pair produces annually from three to as many as seven broods. Both sexes incubate, sitting together in the nest after the manner of many of the Ploceid Finches. The young must be removed as soon as the old birds go to nest again, otherwise they are murderously attacked. The clutch consists of four eggs. In this country I believe Mr. Hawkins was the first to breed the species. (*The Avicultural Magazine*, 1st Ser., VII., p. 29.)

OLIVE FINCH (*Phonipara lepida*).

Above olive-green; lesser and median coverts rather yellow; rest of wing and tail dusky with olive outer margins, yellower on primaries and tail-feathers; central tail-feathers entirely yellowish olive; a blackish frontal line passing above the eye; lores, eyebrow stripe and eyelid orange; feathers in front of and below eye and the cheeks blackish; upper throat orange, lower throat blackish; breast, sides, and flanks ashy olive; centre of breast and abdomen buffish, whiter towards vent; thighs whitish; under tail-coverts pale yellow with dusky mottling; under wing-coverts and axillaries pale greenish yellow, brighter at edge of wing; flights below dusky, with ashy inner edges; beak horn-black; feet purplish; irides dark hazel. Female duller; eyebrow stripe pale yellowish; no blackish on sides of head; margins of eyelid whitish; lower throat only mottled with blackish; chin pale yellow; under parts pale ashy whiter at centre of breast and abdomen and on thighs; under tail-coverts as in male. Hab., "Greater Antilles." (Sharpe.)

According to Gundlach this is a resident bird in Cuba "common in fields and regions devoid of forest, less so in the vicinity of forest and never penetrating far into woods. In the summer and the breeding season it lives in pairs or family parties; in the dry or cold season it unites into large flocks on the sugar-plantations, where it feeds upon sugar on the drying-grounds, or on the coffee plantations, where it also finds sufficient food. This consists of actual seeds, especially grass-seeds, as well as tender sappy green food, such as wild purslain; it eagerly sips the nectar from large flowers. It never does any harm to mankind. Almost the whole year through one finds nests with eggs or young, even in the winter months. The actual nesting-season, however, first commences in the rainy season of the spring. The nest almost always stands at a little distance above the ground, in shrubs, small coffee or orange-trees, etc. It is comparatively large, more or less globose in structure, with a side entrance, and consists externally of dry plants, hair, wool, feathers, rootlets, cotton, and the like, and internally of a layer of soft materials, plant-wool, feathers and other materials. The number of eggs amounts to two or three, but not, as D'Orbigny states, to five.

"One can easily keep it in a cage, and if this is large even breed it. The food consists of canaryseed and finely-ground maize. The song has no merit; it is weak and in some degree resembles the sounds which grasshoppers make—moreover it has only one call-note. That it can learn to sing, as D'Orbigny asserts, I do not believe; this assertion certainly arises from a mistake."

According to Mr. L. W. Hawkins (*The Avicultural Magazine*, 1st Series, Vol. VII., p. 30) this species was first bred by a gentleman in Scotland, two males and a

female being successfully reared. Mr. R. Phillipps says that these birds came into his hands and they seem to be assuming the plumage but not the song of *P. pusilla* rather than *P. lepida*. Mr. Seth-Smith, who bred the Olive Finch in his aviaries in 1907, found them just as murderous towards their young when starting to nest again, as Dr. Russ says the Cuba Finch is.

LITTLE FINCH (*Phonipara pusilla*).

A sub-species of the preceding according to Dr. Sharpe, but Mr. Phillipps appears to doubt this.* It differs from *P. lepida* in its yellower colouring, the secondaries entirely yellowish-green, as well as the central tail-feathers; crown more dusky than back; blackish on the forehead; lores, eyebrow, and margins of eyelid golden yellow; feathers round eye, ear-coverts, and cheeks black; chin and upper throat golden yellow; lower throat, breast and centre of abdomen in front blackish, rest of abdomen dark ashy olive; sides, flanks, and thighs olive-yellowish; under tail-coverts similar but mottled with dusky; under wing-coverts and axillaries olive-yellow, the latter duller. Female with wing-coverts olive-greenish like upper surface generally; other wing and tail-feathers dusky with olive margins; sides of face and under surface olive-greenish, yellower in centre of abdomen. Hab., Mexico, through Central America to Panama and Colombia. (Sharpe.)

I have discovered no notes respecting the wild life of this bird, but Mr. Reginald Phillipps has given a long and interesting account of his success in breeding it in captivity in *The Avicultural Magazine*, Ser. 1, Vol. VI., pp. 191-199 and 237-240.

DUSKY FINCH (*Phonipara bicolor*).

Above dull olive-green, almost black on head and dusky on mantle and upper back; greater coverts, bastard-wing, primary-coverts and flights dark brown, externally edged with dull olive; tail similar, but the central ones washed with dull olive; sides of head, throat, and breast dead black; abdomen and under tail-coverts more ashy and with whiter edges; sides and flanks olivaceous; thighs dull olive; under wing-coverts and axillaries dead black; flights below blackish with ashy inner edges; beak brown, paler on lower mandible; feet brownish grey; irides brown. Female without black on head, the sides of head ashy-brown with an olive tinge; throat, front and sides of breast sooty grey tinged with olive; centre of breast and abdomen whitish with a slight yellow tinge; sides of body and flanks olive-brown. Hab., Lesser Antilles, Colombia, and Venezuela.

Mr. J. L. Bonhote (*The Ibis*, 1899, p. 512) says of this species:—"The Sparrow of the Bahamas, abundant everywhere, especially round habitations," and (*The Ibis*, 1903, p. 290) "A most abundant resident. The nest is a domed structure made entirely of dry grass, generally placed at the top of a small straight sapling at a height varying from four to ten feet. The eggs are of a dull white with brownish markings, most conspicuous at the larger end. Measurements .72 by .51 mill. Incubation commences at the end of March."

This completes the true Finches (*Fringillidae*), and leads naturally to the *Ploceidae* or typical Weaving Finches, of which I should judge the most ancient type to be the genus *Munia*, which probably branched off on the one side into the Grassfinches and Waxbills, and on the other to the Weavers and Whydahs.

* The intermediate form from Cozumel and Holbox Island has been regarded as a second subspecies by Ridgway, under the name of *intermedia*.

CHAPTER XII.

WEAVERS (*Ploceidae*).WAXBILLS (*Estrildinae*).

This sub-family was erected by Captain Shelley to contain those Weaving-finches which possess no distinct winter plumage, and was intended to embrace the whole of the Waxbills, Grassfinches, and Mannikins. Unhappily there is one Waxbill—the Indian Amaduvade, or Avadavat—which possesses a very well defined winter plumage. I think, therefore, while adopting the sub-family, it would be better to restrict it to the Waxbills, and define it as containing long slender Finches with tapering cone-shaped beaks; the males when courting pointing their beaks straight upwards to the sky; the Grassfinches and Mannikins I would distinguish as *Muniinæ*.

DUFRESNE'S WAXBILL (*Oocorypygia dufresnii*).

Entire top of head and nape leaden grey; mantle yellowish olive, indistinctly barred with dull greyish; lower back and upper tail-coverts orange-vermilion to bright tawny; wing smoky blackish, the feathers, especially the secondaries, externally edged with olive; central tail-feathers black, the others smoky brown, paler next to shafts and partly fringed with whitish; sides of head from just above eye, including cheeks, ear-coverts, chin, and throat, jet black; bordered behind from sides of neck across lower throat with white which shades off into sordid pale grey behind, the whole breast and flanks being of this colour; abdomen, thighs, and under tail-coverts pale buffish, brighter just behind the breast; upper mandible black, lower crimson; feet black; irides bright red. Female without black on head, which is leaden grey, fading to white on chin and throat. Hab., S. Africa from the Cape to the Zambesi.

According to Capt. Shelley ("Birds of Africa," Vol. IV., Part 1, pp. 234-5), "Mr. Atmore says that it is common at George, wherever there is cultivation; it is restless in its habits and migratory, appearing in autumn."

Mr. Stark says ("Birds of South Africa," Vol. I., p. 108):—"In Natal this pretty little species is, when not breeding, usually met with in small parties of ten or twelve, feeding on the ground on grass-seeds. When searching for food they keep close together, and constantly utter a sharp, chirping call-note. If disturbed they rise simultaneously with a prolonged 'chirrup' and fly for a short distance to settle again on the ground. This Waxbill breeds in Natal not uncommonly, but not, so far as I have observed, near the coast. Not far from Howick, at a height of about 3,000 feet I have met with their nests in some numbers. Unlike many of the Waxbills, they build in tall bushes and young trees, at a height of from six to ten feet. The nests are rough-looking, oval structures, with an entrance hole on one side, constructed of fine dry grass. The flowering ends of the grass being woven together, the stiff stalks are left projecting in all directions. The interior is lined with grass tops, down, and feathers. The eggs are very small, pure white in colour, and four or five in number. When first hatched the young are fed on small caterpillars."

Hagenbeck, of Hamburg, first received this bird in 1869, and in 1874 both Hagenbeck and Jamrach received it. Dr. Russ obtained two males from the former dealer in that year; later again he succeeded in securing two pairs, but he says that they were diseased when he received them and soon died; this appears

to be frequently the case with this lovely little bird, which when first imported is very delicate, and as it is by no means cheap, I have not been tempted to purchase it. Of late years it has been imported by Mr. Hamlyn and others. It has been exhibited at the Zoological Gardens of London for many years. I shall not forget the indignation of the late Mr. Abrahams, on the occasion of its first appearance at a Crystal Palace Show, to find that this bird, which at that time was a very great rarity, had been passed over with a v.h.c. "on account of its perfect condition," the judge said, while in the same class the males of two widely different Weavers (one in winter plumage) had been awarded first prize as a true pair. He gave that judge a very uncomfortable half-hour; so much so that I believe he never again ventured to judge foreign birds. I was sorry for him, too, for he was a good fellow. Well, both the judge and his censor have passed away, and the owner of that Waxbill only suffered as all of us have done who have ventured our birds on the show-bench.

Dr. Russ describes the Black-throated Waxbill (*Lagonosticta nigricollis*), but I cannot discover that it has ever been imported.

MASKED FIREFINCH (*Lagonosticta larvata*).

Slaty-grey above; hind neck washed with vinaceous red; lower back, upper tail-coverts and margins of tail-feathers crimson; tail otherwise black; wings more dusky than back, quills pale smoke-brown with ashy white margins; sides of head, chin, and throat black; breast vinous red, flanks marked with black-edged white spots; centre of breast, abdomen, thighs, vent, and under tail-coverts dull black; under wing-coverts whitish, varied with vinous and grey; beak and feet slate grey; irides dusky brown. Female not differentiated. Hab., North-east Africa.

All that Captain Shelley tells us about the life of this Waxbill is that Mr. Kuschel describes the egg as white and measuring 0.56 by 0.43.

The late Mr. Erskine Allon had this rare species in his birdroom, and appears to have considered it rather less delicate than most of the other Firefinches; he gave the same trivial name to the following species, but mentioned both scientific names; otherwise, in spite of the fact that he certainly possessed many rare birds, one might have doubted whether *L. larvata* was actually one of them.

VINACEOUS FIREFINCH (*Lagonosticta vinacea*).

Vinous red above, brighter and deeper on upper tail-coverts and outer edges of tail-feathers; tail otherwise dull black; primaries, their coverts and inner webs of secondaries dark brown; crown leaden-grey with a few black feathers at base of forehead; sides of head, chin, and upper throat black; lower throat and breast vinous pink, grey at base of feathers; centre of abdomen, thighs, and under tail-coverts dull black; some small white spots on flanks; under wing-coverts white; inner edges of quills whitish; beak and feet leaden grey; irides brown. Female not differentiated. Hab., Senegambia.

Nothing appears to have been recorded respecting the wild life of this species.

Mr. Allon had this in his birdroom, and a few examples have been imported of late years; it was evidently unknown to Russ as a cage-bird.* It was exhibited at the Palace in 1903 and 1904.

* Mr. Seth-Smith says (*Agricultural Magazine*, N.S. vol. II., p. 103): "These little Firefinches are more often imported than is generally supposed; I once picked out six from a lot of common Firefinches in a dealer's shop." He was not sure whether they were *L. larvata* or *L. vinacea*.

BLACK-TAILED LAVENDER FINCH
(*Lagonosticta perreini*, var. *incana*).

Above delicate blue-grey; lower back and upper tail-coverts deep crimson; flights dusky, externally edged with grey; tail-feathers dull black; a black line across base of forehead, and a black streak through the eye; base of chin black; sides of head and throat pale bluish ashy, deepening on lower breast axillaries and abdomen, and becoming smoky blackish on under tail-coverts; under wing-coverts white, ashy towards edge of wing; flights below dusky, with ashy inner margins; beak grey; feet black; irides red. Female not differentiated. Hab., Natal and Zululand.

Mr. Stark says ("Birds of South Africa," Vol. I., pp. 101, 102):—"Captain Shelley found this Waxbill nesting in Natal, he writes in *The Ibis*: 'Although it is far from common at Durban, on the 8th of March I took one of their nests containing two pure white eggs. It was placed in a creeper overhanging the footpath, and was easily reached from the ground; in structure it was very similar to that of *Estrilda astrild*, though smaller and less compact, though made of the same materials.' The Messrs. Woodward met with it in Zululand, nesting in a small tree in the open country. The nest, built of grass lined with feathers, contained six very small white eggs.

"I have on several occasions found the nest of this species near Pinetown, in Natal, built both in bushes and low trees. It is domed, loosely constructed of dry grass and lined with feathers. The eggs, from four to six in a clutch, are laid in December and March, for these birds are double brooded. They are pure white, and average 0.54 by 0.42.

"The Grey Waxbill is nearly always in pairs, is very tame, and feeds on the ground on grass-seeds and small insects. Its note is a soft chirrup."

Mr. Erskine Allon also had this species in his bird-room; coming from South Africa it would be strange if it did not sometimes turn up in the bird-market, and although Russ does not mention it, I should not be surprised if it had sometimes been ignorantly sold as the Common Lavender Finch.

COMMON LAVENDER FINCH (*Lagonosticta caerulea*).

The male above is pearl-grey, with the lower back and upper tail-coverts bright crimson-lake; the two central tail-feathers crimson, dull, excepting at the edges, and with black shafts; remaining feathers dull black, more or less dull crimson on the outer web; flights, smoky-brown, with greyer outer webs; a black loreal streak enclosing the eye; cheeks, chin, and throat, pale pearl-grey, deepening to sooty-grey on the abdomen, where there are usually two or three white spots on the flanks; abdomen, from the thighs backwards to the vent, blackish; under tail-coverts, bright crimson; under wing-coverts, whitish-grey; flights below, sooty grey; tail, slaty-grey; beak, black, with lateral crimson streak; legs, blackish grey; iris, greyish olive.

The female may be distinguished, as Mr. Abrahams proved to me, by the sooty rather than black colouring of the hinder portion of the abdomen from the thighs backwards. Habitat, Senegambia.

All that is recorded of the wild life of this common and beautiful Waxbill is that it lays white eggs which measure 0.62 by 0.46. As all the Waxbills lay white eggs this does not add much to our knowledge.

In captivity this has always been considered one of the most delicate of the Waxbills. I have repeatedly purchased examples and tried to keep it both in cage and aviary, yet, with one exception, have failed to preserve life in it for more than a few months. This

single exception lived in one of my aviaries for about four years.

As a rule, I should judge one year to be a long term for this Waxbill to survive in captivity. Five perfect examples purchased in May, 1898, were all dead before the end of June, and from no apparent cause. In spite of this general delicacy, however, it was bred by Miss Rosie Alderson in 1900, but in a heated aviary; they nested three times, but only one young one was reared, and the hen bird died from egg-binding while laying her third clutch of eggs.

For feeding the young Miss Alderson provided, in addition to seeds, crushed biscuit, preserved yolk of egg, and maw-seed, given fresh daily; cut up mealworms, some being put in over-night so as to be ready the first thing in the morning, and she believes that ants' eggs also were given. (Cf. *The Avicultural Magazine*, 1st Ser., Vol. VII., pp. 45-49.)

Of course, the species has been bred in Germany, or I should think so, since it has been successfully crossed with the African Fire-finch. Dr. Russ lost his sitting birds through the interference of Parson Finches. The flight of the Lavender Finch is extremely rapid, which one would hardly expect from the rounded character of its wings. It can hardly be said to have a song, but such notes as it utters are mostly clear and pleasing.

BAR-BREASTED FIRE-FINCH (*Lagonosticta rufopicta*).

Above brown; upper tail-coverts deep rose-colour; quills dark brown with paler outer borders; tail brown, somewhat rosy towards base of outer webs; base of forehead, sides of head, throat, and breast rose-red, paler and browner on abdomen, flanks, and thighs; some tiny white bars on throat and chest; under tail-coverts white, the longer ones brown edged with white; under wing-coverts bright buff; flights below dusky, their inner edges greyish buff; beak violet-red, black on culmen and lower edges; feet dull reddish; eyelids yellow; irides pale dull brown. Female with no trace of red on wings and fewer white markings on breast. Hab., "Senegambia to the Niger and Upper White Nile districts." (Shelley.)

The following notes on the wild life I take from Shelley's "Birds of Africa," Vol. IV., Part 1, p. 263:—"T. E. Buckley and I found the species to be extremely abundant during the spring of the year, near Cape Coast, generally in small flocks feeding along the paths which intersect the thick bush."

"Henglin . . . records it from the Djur and Kosango Rivers, along the banks of which streams he met with a few during the rainy season."

"Regarding its habits Ussher writes:—"This pretty little Bengali is one of the commonest birds on the West Coast of Africa. It is extremely tame, frequenting the vicinity of houses, and peeping about the yards with the confidence of the common House Sparrow in England. They build in low grass, on the seeds of which they also feed, and are gregarious; in the bush they will associate in flocks with other Bengali."

"According to Mr. Kuschel the eggs are pure white and measure 0.56 by 0.44.

Dr. Russ seems to have been unaware of the importation of this Waxbill, and states that it must ever remain a rarity, but in this conclusion I think he was mistaken. In 1898 the late Mr. Abrahams received a tolerably large consignment, but they died off at such a rate that I am afraid he made little or nothing out of them; he sent me quite a number of the dead bodies, but all very dirty and with frayed wing and tail-feathers. The species was exhibited at the Crystal Palace in 1903 and 1904.

COMMON AFRICAN FIRE-FINCH (*Lagonosticta senegalensis*).*

The male above is rosy crimson, somewhat browner on the back and on the wing-coverts; the tail-feathers black, washed with crimson on the outer webs; the head, throat, and breast rosy crimson, changing to buffish brown on the abdomen; sides of breast dotted with white; under tail-coverts white at base; beak crimson; legs dark flesh-colour; eye-ring yellow, iris brown. The female above is dark brown, crimson on the rump and upper tail-coverts; a small crimson loreal spot; under surface buffish brown, clearer on the abdomen, sides dotted with white; wing brown, tail black. Hab., Senegambia to the Niger.

In its native country this tiny Finch affects the inhabited districts, being met with in small flocks in towns and villages, where it constructs its nest in holes and crevices of buildings; the structure is said to be untidy and inartistic, little more than a heap of straw lined with horsehair, feathers, grass, and wool. The little white eggs vary in number from three to seven.

I know of no Waxbill so delicate as this; indeed, I have had many, but never succeeded in keeping one for more than seven or eight days. They appear to die without any apparent cause, however perfect their condition. Other bird-lovers were more fortunate, but personally I consider it mere waste of money to purchase this little bird, however cheap it may be. Nevertheless this bird has been freely bred in German bird-rooms, and even in England Mr. Farrar appears to have secured acclimatised examples in the summer of 1897, which wintered in a cold indoor aviary, and in the summer of 1898, built in a cocoanut husk hung low down, laid two eggs and reared one young one.

Dr. Russ says of it:—"Not one of the *Astrilds* nests so readily as this." The difficulty, however, is to get acclimatised birds.

BROWN-HEADED FIRE-FINCH (*Lagonosticta brunneiceps*).

Differs from *L. senegalensis* in having the head and nape brown; sides of breast always spotted with white; beak vinous red; feet reddish grey; eyelids leaden grey with a fine yellow eye-ring; irides reddish-brown. Female like that sex of *L. senegalensis*. Hab., "Nubia, southward to the Rovuma River and westward to the Niger and Upper Congo." (Shelley.)

Capt. Shelley ("Birds of Africa," Vol. IV., Part 1, pp. 259, 260) quotes the following notes on the wild life:—"Heuglin met with these birds in the town of Dengela, at Berber, Senaar and Kordofan; they were generally in small flocks and single specimens, mostly seen in the warmer parts of Abyssinia and along the White Nile, and according to his notes, they assume the full plumage here in July and August, when they begin to breed, often placing their nests close to each other, at times under the roofs of houses and in holes in walls. The nest has a large, irregular outer coating of straw, covering a shallow depression for the eggs, and is composed of hairs, feathers, grass and wool. The eggs vary in number from three to seven. It is a lively little bird, associating freely with other Finches, and occasionally will enter a house to pick up the bread-crumbs. It is rarely seen in trees during the day-time, when it is generally seeking its food on the ground, often near dwellings." The Hon. N. O. Rothschild and Mr. Wollaston write:—"These beautiful little birds were never observed far from the huts on the river-bank, where they were often seen picking up crumbs of durrumeal almost out of the hands of the natives."

My friend, Mr. A. L. Butler, has sent me the following note from the Soudan:—"A common resident. Very

fond of the vicinity of houses and villages. A charmingly fearless little bird, entering verandahs and out-houses freely to drink from jars. I have seen it at Khartoum (all the year), at Gedaref (April to June), at Gallabat (June), Wad Medani (April and June)." Mr. Hawker remarks: "Not noticed south of Gozabu-gumar, but I found it at Fashoda and up the Bahr-el-Ghazal to Meshra-es-Rek in March and April. I saw a pair feeding a newly-fledged young one at Khartoum, January 19, 1903; when I approached to look at the young, one of the parents fluttered about within a yard of me."

Mr. Erskine Allon, who had this species in his bird-room, considered it an exception to the general rule of delicacy among the Fire-finches. From its close resemblance to the Common African Fire-finch, it is likely enough that this species may not be anything like so rare in the bird-market as is generally supposed.

Captain Shelley places the following species in Reichenbach's genus *Hypargos*; and although I am generally following the nomenclature of the "Catalogue of Birds" in the British Museum, the different character of the wings necessitates this alteration.

PETERS' SPOTTED FIRE-FINCH (*Hypargos niveiguttatus*).

Above chocolate-brown, duller and more ashy on crown; nape, back and wing-coverts tinged with crimson; remaining wing-feathers dull blackish, brown externally; rump and upper tail-coverts bright crimson as well as the central tail-feathers; the remaining feathers black internally, crimson externally; sides of head, throat and chest crimson; remainder of under parts jet black; flanks thickly marked with large round white spots; beak slate-black; feet reddish brown; irides brown. Female with the sides of head brown, instead of crimson; chin buffish; crimson of breast duller than in the males. Hab., Eastern half of Africa from Inbambane to the Equator.

An excellent coloured plate of both sexes of this beautiful Waxbill was published in *The Avicultural Magazine*, N.S., Vol. III., February, 1905.

According to Captain Shelley ("Birds of Africa," Vol. IV., Part 1, p. 241) Mr. H. F. Francis writes:—"It frequents thick undergrowth and apparently finds its food among the leaves on the ground, as it is generally seen scratching about there."

This bird was exhibited at the Crystal Palace by Mr. Hawkins in 1903 and 1904. Mr. Seth-Smith thinks that it shows some relationship to *Pytelia*, but Capt. Shelley says that *Hypargos* (to which genus he very properly refers this species) has the second primary "broad throughout its length (never the least sulcated towards the end, as is the case in *Lagonosticta* and *Pytelia*)."

COMMON AMADUVADE WAXBILL (*Sporaginus amandava*).

In breeding plumage the cock bird is very handsome: the upper part of the head and the back are deep copper-brown; the sides of the head, throat, and upper tail-coverts brilliant coppery-red; the feathers on the rump and the tail-coverts are also marked near the tip with a round white spot; the tail is black; the breast is dull coppery-red spotted with white, and the abdomen is blackish-brown; the iris of the eye and beak are bright red, and the legs pink. Female brown above, with the wings darker, spotted with white, a streak of black enclosing the eye, and a whitish streak below it; sides of face greyish, throat pale buff, browner on the breast; remainder of under parts bright ochreous, greyish at the sides.

The colouring of the male birds is constantly altering throughout the year, and at certain times closely

* Captain Shelley regards *L. senegalensis* and *L. minima* as the same species, and the former is by far the older name.

resembles that of the females; hitherto the order and seasons in which these changes take place have not been carefully noted. Hab., India, Cochin-China, Siam, Java. The "Avadavat," as this bird is often called, in its wild state frequents cultivated land, gardens, etc., usually building its nest in a thick bush, reeds, or long grass; the nest itself is similar to that of the preceding species, as are also the eggs.

This Waxbill is one of the commonest and cheapest in the bird-market. When I first began to keep birds its price was five shillings for a pair; though, from ignorance of its value, I gave considerably more for the first pair I ever bought (nearer £2 I think); now it averages about 3s. 6d. a pair, and when the market is glutted with it, as does sometimes happen, it is considerably cheaper. I well remember buying two dozen for ten shillings, the last of them dying, I believe, early in 1907; I could not say how old it was.

Like all the Waxbills, this tiny bird lives well on white millet, canary, millet in the ear, and grass-seed; but a turf should always be in the aviary, and a saucer of egg-food or biscuit. All the species of Waxbills are also very fond of small spiders, or even house-flies, if they are pinched, to enable the birds to eat them—they will not catch them on the wing. A pair of Avadavats built a nest in a box-tree, which I introduced, in a pot, into my bird-room; but no sooner was it finished than a pair of Cordon Bleus took possession, to be in turn ejected by Lavender Finches; shortly afterwards the cock Cordon Bleu died, having suffered from the attack of the Lavender Finch, and, the hen of the latter bird dying about the same time, the widow and widower made a match of it and occupied the nest together. However, nothing resulted from all this struggling beyond the loss of several pretty species which previously had lived together in amity.

The common Amaduvade is absolutely hardy, and can be bred in the open air in a netted-in garden; in an aviary with numerous other birds it gets too much disturbed.

Dealers generally insist upon there being two species of Avadavats—the common one from India and the Malayan one—*Sporaginus* (*Estrilda*) *punicea*, which they distinguish under the popular name of Tiger-finch. Dr. Sharpe says: "I have come to the conclusion that *E. punicea* cannot be separated from *E. amandara*." Those that I have seen appeared to me to differ much as *Lagonosticta minima* from *L. senegala*, and doubtless our American friends would call both sub-species, in spite of intergrades passing from the one type to the other.

ZEBRA OR GOLD-BREADED WAXBILL (*Sporaginus subflavus*).

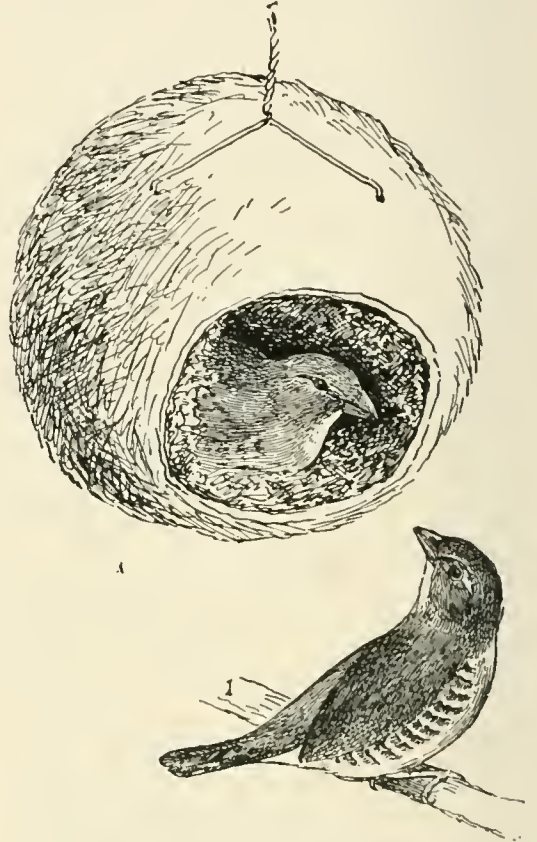
The cock Zebra Waxbill above is of a brownish olive-green, the tail black, the throat, abdomen, and under tail-coverts are bright yellow, shading into bright orange on the breast; the beak and a streak passing through the eye to the ear are coral-red; the sides of the body are grey barred with white. The hen is more soberly coloured than the cock, the yellow and orange of the under parts being much paler. Hab., North Tropical Africa, between about 16 degrees N. lat. and the Equator.

Captain Shelley distinguishes the Southern representative under the name of the Southern Zebra Waxbill (*Estrilda clarkii*), and says it differs in the entire throat and centre of breast being pale yellow, with, at most, a slight wash of orange on the crop. Centre of breast in female buffy white, with a faint lemon shade on the breast. Hab., Natal to the Equator.

No doubt both forms are sold indiscriminately under

one name, and it is probable that at the Equator where the two forms meet it would be very difficult to say which was which.

Mr. W. R. O. Grant, describing an example obtained at Moradar (*The Ibis*, 1907, p. 583), says:—"The example of the Sanguineous Waxbill procured by Mr. Zaphiro, apparently an unusually fine bird, has the breast and belly scarlet and of a much more intense colour than in any of the specimens in the British



ORANGE-BREADED OR ZEBRA FINCHES.

Museum. Happily he does not give it a distinctive scientific name.

Of the Southern form Mr. Stark writes ("Birds of South Africa," Vol. I., p. 106):—"These very beautiful little Waxbills differ somewhat in their habits from the common *Estrilda astrilda*. They prefer the borders of streams and marshes, where there is a thick growth of bushes and reeds, to the more open grass-lands, and they are much shyer and more easily alarmed. In Natal, where they are not uncommon from May to December, I have generally met with them in flocks of no great size, feeding on the ground on grass-seeds, but taking refuge in bushes if disturbed. When feeding they keep up a continuous chirping."

"The eggs of this species are pure white, and measure on the average 0.52 by 0.40."

In captivity this Waxbill has been induced by the Germans to breed tolerably freely in a high temperature;

and of late years it has been bred by various members of the Avicultural Society in open-air English aviaries. When first imported it is somewhat delicate, though less so than many of the other African Waxbills; when once acclimatised it lives to a good old age—eight to ten years being not exceptional.

ORANGE-CHEEKED WAXBILL (*Sporaginus melpodius*).

The cock bird has a dark slate-grey cap, the back and upper wing-coverts rufous brown, the flight feathers rather darker, the upper tail coverts crimson, the tail blackish, the outer webs just touched with crimson towards the root; the under parts are ashy grey, slightly browner on the belly, and tinted with rose towards the vent; the beak and a little patch between the latter and the eye crimson; cheeks orange, legs greyish brown. The hen is less brightly coloured than the cock, but otherwise similar. Oddly enough Prof. Ridgway describes the species (from Porto Rico, to which island it has been introduced) as possessing a female with no orange on the side of the head; either his females are birds in nestling plumage, or the West Indian climate must have greatly modified the species. Hab., Senegambia to Angola.

The following notes are from Captain Shelley's "Birds of Africa," Vol. IV., Part 1, p. 213. Speaking of the Gambia, he says:—"In the latter district Dr. P. Rendall found its nest, hidden in long grass, lightly constructed of that material, and containing seven white eggs; these measure 0.52 by 0.4." Mr. Boyd Alexander writes:—"The species is plentiful around Kumassi, consorting together in large flocks. We found a number of nests attached to the elephant-grass, which we cleared away the day after the fort had been relieved."

This is an active little species, but rather nervous. When feeding with many other small Finches it will suddenly give a cry of alarm, and the whole crowd will fly up in a startled rush, though nothing whatever has really happened to cause alarm. I suspect that this bird either has a bad conscience or is fond of practical jokes; there seems no other way of accounting for such uncalled for panic. The Orange-cheeked Waxbill has been bred in aviaries, but my specimens showed no inclination to do so. For breeding these and other Waxbills, soaked ants' eggs have been recommended as part of their diet, but I have never known any of the ornamental Finches to touch this food, and therefore I have entirely given up the attempt to induce them to do so. Sponge cake dry, insectivorous birds' food, and a fresh turf is all they need.

Miss Alderson was, I believe, the first to breed this bird in England, and in a cage! (See *The Avicultural Magazine*, 1st Ser., Vol. VIII., p. 36.)

I have found the Orange-cheek one of the most delicate of the African Waxbills. It is most easily kept in an aviary cage in a dwelling-room, or in a room kept (after the German fashion) constantly at a high temperature. Like all the Waxbills, it needs a retiring place in which to keep snug at night, a warmly lined cocoanut husk or plaited nest-basket being perhaps the most satisfactory. Like some of the other delicate species, I believe it is quite capable of being rendered hardy by turning it into an outdoor aviary about the beginning of June, and keeping it there until after the commencement of the winter frosts; but, of course, it must have some shelter to retire to at night.

GREEN AMADUVADE (*Stictospiza formosa*).

Its back is olive-green, becoming golden-green on the rump and upper tail-coverts; the tail is black, and, as with all the Waxbills, is constantly jerked from side to

side; the throat and chin are dull whitish; the breast dull yellow; the abdomen and under tail-coverts bright chrome yellow; the sides of the body pure white, transversely barred with black; the iris of the eyes clear brown; beak, dull crimson; legs, flesh-pink. The hen is a little paler and duller than the cock. Hab., Central India.

In its wild state this bird's favourite haunts are fields of sugar-cane or the dense jungle-grass on the banks of streams and rivers. In such places the nest is constructed, being situated with its back to the stalks of sugar-cane or grass, a leaf above and below being woven into the nest, and a few others into the sides to keep it in position. The nest itself is large, globular, and compactly woven of coarse grass and strips of sugar-cane leaf, the lining being of finer grass. The entrance hole is in front, and is prolonged into a short neck somewhat depressed so as to conceal the opening. Five white eggs are usually deposited, which can in no respect be distinguished from those of other small Ploceine Finches.

This Waxbill is by some aviculturists regarded as a delicate bird, but I have found it longer lived and harder than any other species, not excepting even the common Amaduvade. About 1893 or 1894 I purchased eight of these birds in two lots, and in 1898 six or seven of them are recorded as still living; about 1899 they began to drop off, but several of them survived for from eight to ten years, I believe; not one of them is labelled, unfortunately, as regards date of its death.

I have known this bird to endure twenty-one degrees of frost without injury, proving it to be at least as capable of resisting cold as the common Amaduvade. Breeding in captivity is very uncertain; I have had both nests and eggs in my aviaries, but the Green Waxbills have always been disturbed by other birds, and this has put a stop to incubation. In 1905, however, Mr. W. E. Teschemaker succeeded in breeding it, and again in 1906, when he sent me a young bird in order that I might note its assumption of the adult plumage; unfortunately it died on September 16th.

In the young plumage this bird is of a distinctly yellower olive-colour on upper parts than the adults; the clear pale sulphur yellow and the black-and-white striping of the sides and flanks are wanting; the under surface is washed with brownish buff, especially across the breast, on sides and flanks, and thighs, there is a diffused sulphur yellowish patch behind the breast, which passes into white in the centre of the abdomen; the under tail-coverts are sulphur yellow, the beak is black, inclining to crimson on gonyes, the feet brownish flesh-pink.

When first imported Green Waxbills are usually in poor plumage, and if a specimen in this condition is turned in with acclimatised examples of its own species, the latter will all attack it, pulling out additional feathers; it is, therefore, best to keep newly acquired examples by themselves until their plumage is renewed.

The two kinds of millet (white and spray) commonly used by aviculturists and a little canary-seed are sufficient to keep this species in health, but all the small Finches delight in grass in the ear, which should always be given when obtainable.

RED-BROWED OR AUSTRALIAN WAXBILL
(*Egintha temporalis*).

Above it is olive-green, the flights with brownish-grey inner webs; upper tail-coverts crimson; central tail feathers black, the others brown; crown of head and nape slate-grey; a broad carmine eye streak as in the St. Helena and Grey Waxbills; eyelid crimson above, grey below; sides of face and throat ashy, chin

whiter; breast and abdomen smoky pearl-grey at the sides, buffish in the centre; under wing-coverts brownish-white, flights and tail below smoky grey; beak carmine, the culmen black, as also the under surface of the lower mandible excepting at the tip; legs yellowish horn-colour; iris crimson. The female has not been differentiated, but I believe she is a trifle duller than the male. Hab., Australia, from Queensland to Wide Bay district, and New South Wales.

Abundant in the gardens and grassy pastures of Sydney, and assembling in large flocks in the autumn. In the spring chiefly seen in pairs. It builds a large flask-like nest of grass lined with thistle-down in any suitable low bush. As many as fifty nests have been met with in a single day, which speaks loudly for the abundance of the species, and the only marvel is that it has not become one of the cheapest and most popular species in the bird market. A sitting consists of five white eggs. The song, which I have heard many times in my aviaries, is "See-sizz-it," repeated rapidly about five times.

This is certainly one of the most hardy of the Waxbills, and lives in a cool aviary for years without trouble, provided that, if a hen, it does not become eggbound. Even then, if picked up and transferred to a warm cage, it will usually have recovered by the following morning. Nevertheless, Dr. Russ was of opinion that this bird was more delicate than most Australian species, and less lively. I was not specially fortunate with my first pair, but others subsequently purchased have done remarkably well with me. I find them about as active as Grey Waxbills.

This has generally been called Sydney Waxbill, but it is a very unsatisfactory name for a bird with so wide a range. Mr. Reginald Philipps, who bred this species in his garden aviary in 1902 (see *The Avicultural Magazine*, 1st Ser., Vol. VIII., pp. 289-293), calls it the Australian Waxbill.

ST. HELENA WAXBILL (*Estrilda astrilda*).

The prevailing colour of this bird is earthy grey, with narrow darker transverse bars, the under parts washed with rose colour, which deepens to bright crimson on the centre of abdomen; the vent, under tail coverts, and inner webs of tail feathers black; the lores, and a streak continuous therewith enclosing the eye and extending to the ear-coverts, bright crimson; beak crimson, feet blackish, iris brown. The female has less crimson on the abdomen than the male; she is also slightly smaller, and has a shorter and more rapidly tapered beak. Hab., S. Africa, ranging to Damaraland on the west and Matabeleland on the east. It has been introduced into St. Helena, Mauritius, Madagascar, etc.

In his great work on the "Birds of Africa," Captain Shelley recognises three sub-species of this species and three other forms he regards as true species, viz., *E. minor* (East Africa), *E. occidentalis* (West and North-east Africa), and *E. rubriventris* (Gaboon to Angola). On the other hand, Dr. Sharpe regards *E. minor* and *E. rubriventris* as sub-species, and *E. occidentalis* as synonymous with the latter. Doubtless all the forms have at times been sold indiscriminately as St. Helena Waxbills; they chiefly differ in size and richness of colouring.

The nest, when built in a state of liberty, is said to be often as large as a stable-bucket and inhabited by several pairs; it is formed of all kinds of rubbish and lined with a mass of feathers. As usual, the eggs are white, and as many as fourteen are sometimes found in a single nest.

In its wild state this bird is gregarious, and can be

captured in flocks of hundreds; it is, therefore, no marvel that it is cheap in the bird market, in spite of its tendency to drop off unexpectedly when first imported.

The song of this Waxbill consists of six shrill notes, and is not displeasing, whilst the bird itself brightens up an aviary so long as it lives; but, unless purchased in the spring, this and all African Waxbills are almost certain to die soon after their arrival. Up to the present time I do not think I have been able to keep the St. Helena Waxbill for more than eighteen months; but in one of those toy-aviaries (of the Crystal Palace pattern) kept in a sitting-room at an even temperature most delicate Finches will live for years; yet it is far more satisfactory to turn it into an outdoor aviary at the commencement of the warm weather, and so gradually acclimatise it; there would then be some chance of breeding it.

GREY WAXBILL (*Estrilda cinerea*).

Similar to the preceding species, but decidedly smaller; paler colouring above and below, with less defined barring to the feathers; less crimson on the abdomen, and distinctly shorter tail. Hab., "Tropical Africa, from 5 deg. to 17 deg. N. Lat." (Shelley.)

Of the wild life of this species, Captain Shelley records the following ("Birds of Africa," Vol. IV., Part 1, pp. 203-4):—"Its occurrence in the Cape Verde Islands was first recorded by Dr. Dohrn, and Mr. Keulemans, who accompanied his expedition to those islands, informs me: 'It was met with in flocks of considerable size along the banks of the streams. Native names, "Gingerotte" and "Boco vermilloe."'"

Captain Shelley proceeds to tell us that according to Mr. Boyd Alexander's notes, "it frequents the sugarcane in large flocks, which keep up a constant twittering while on the wing, and reminded him of the Lesser Redpoll. It is locally known as the 'Sugarcane bird.' He found it on Santiago, Brava, Sao Vicente and Boavista. On November 17th, while on Sao Nicolau, he took a nest of the species. "It was placed between the upper stems of a young orange-tree, domed like a Sparrow's, and composed of very fine freshly-plucked grass. The eggs, four in number, were white, and measured 0.6 by 0.45."

When first imported this bird is even more delicate than the preceding species, particularly if purchased in the autumn or winter. Up to 1898 I had rarely been able to keep it for more than a year; of a pair which I purchased in the spring, I think of that year, one died within twelve months, but the other was alive in 1906 when it mysteriously vanished; whether it died in some corner or was killed by mice I don't know.

This little Finch has built and laid eggs in my bird-room, but it did not succeed in hatching them. The nest was formed entirely of hay, so far as I could see; the weaving was done systematically, the hen sitting inside, and passing the bents through to the cock, which sat outside and passed them back to his partner, and between them they made a very neat and compact-looking globe-shaped domicile. The Common Waxbill is of about the size of the Indian Avadavat, but it is far more lively. Like most of the *Astrilds*, it can be obtained for a few shillings, and therefore it should be in every aviary.

ROSY-RUMPED OR SUNDEVALL'S WAXBILL (*Estrilda rhodopyga*).

Above pale brown with darker bars, head greyer and less distinctly barred; upper tail-coverts rosy crimson; median wing-coverts ashy-brown, greater coverts similar

internally, but externally crimson like the inner secondaries; flights otherwise dusky brown with somewhat ashy edges; tail-feathers dull blackish edged with crimson; the outer ones with whitish-brown edges; sides of head white, with a crimson streak from the lores through the eye; throat white; remainder of under surface tawny brownish, narrowly barred with whitish on the sides of the fore neck, breast, and flanks; centre of breast and abdomen paler and more buffish; thighs tawny buff; under tail-coverts deep crimson barred with tawny and blackish; under wing-coverts and axillaries tawny buff; flights below dusky, buffish along inner webs; beak blackish with the tomium and base of mandible red; feet dusky; irides umber-brown. Female not differentiated; probably slightly duller. Hab., "Eastern Africa, between 7 degrees S. lat. and 16 degrees N. lat." (Shelley.)

Very little has been recorded respecting the wild life of this pretty Waxbill; it has usually been observed in flocks and is said to frequent the bush in preference to the reed-beds.

The Contessa Bakkelli secured specimens in Italy in 1903, a description of which she sent to me for identification; and in August of the same year she wrote to inform me that she had bred hybrids between this species and the Grey Waxbill (*E. cinerea*). The nestlings had a rusty red band across the wing, and therefore would bear a greater resemblance to the male than the female parent.

As the Cordon Bleu and allies are palpably far more nearly related to the Violet-eared Waxbill than to the preceding species, I prefer to follow Captain Shelley with regard to those birds. The Rosy-rumped Waxbill seems to me clearly to show affinity to *Pytelia* in the broad crimson stripe on its wing.

CRIMSON-WINGED WAXBILL (*Pytelia phanicoptera*).

The upper surface is vinous brown, greyer on the head; lower back and upper tail-coverts, deep crimson; lesser wing-coverts, brighter; median and greater coverts, greyish-brown edged with red; flight feathers, excepting inner secondaries, also edged with dull red; central tail feathers, crimson; remainder blackish, edged with crimson; under surface grey, barred with white; under wing-coverts and axillaries, white; beak, black; legs, pale brown; iris, red. The female is less brightly coloured than the male, the crimson colouring less pronounced, especially on the margins of the mantle and flights, where it is somewhat buffish; under parts browner, less ashy, much more distinctly and broadly barred with whitish. Hab., Senegambia to the Upper Nile and Equatorial Africa.

In its wild state this bird frequents tall forest and scrub, otherwise nothing is known of its habits when at liberty. It has no true song, but utters a peculiar little flute-like phrase of three notes, the central one being vibrant and prolonged; its call-note is a sharp *whit, whit*.

This bird is also known as the Aurora Finch, and objections have been raised as to its being a Waxbill, on the ground that it is somewhat stout, with short tail and black beak. In all these points it approaches the Lavender Finch, which is, if anything, stouter, and certainly has quite as short a tail, and a beak which is mostly black. As vocalists also the two species are about equal.

I purchased a pair of Aurora Finches on August 7th, 1897, and found them tolerably tame and confiding. Unhappily, the female died on December 3rd, so that I had no chance of breeding the species. In the following spring I turned the male out

into a good-sized aviary, where he divided his time between sitting on a ledge in the sun and hiding under a bush. He died on June 22nd, 1898; on December 30th, 1899, I lost another male. In March, 1906, an unknown friend sent me a male of the Northern form *P. emini*, in which the under-wing and tail-coverts are more distinctly barred. *P. phanicoptera* was bred by Russ. Although not a nervous bird the Aurora Finch is very fond of hiding in bushes, so that when one wishes to point it out to a friend it takes a good deal of finding; it seems to feed chiefly upon millet and canary; but, like all the Waxbills, doubtless eats small insects or spiders when it can get them: it is said to be fond of fresh ant-cocoons.

RED-FACED WAXBILL (*Pytelia afra*).

Above dull orange, slightly tinged with olive; lower back, rump, and upper tail-coverts crimson; median and greater wing-coverts rufescent externally; flights dull brown, with a vermilion shade on outer webs; central tail-feathers crimson, the remainder black, crimson externally; forehead, sides of head and throat crimson; a grey lozenge-shaped patch enclosing the eye; crown, nape, sides of neck, and lower throat ash-grey; remainder of body below olive-yellow, somewhat golden towards sides of neck, irregularly barred with white, especially on the abdomen; under tail-coverts somewhat dusky, broadly barred with white; under wing-coverts whitish; edge of wing yellowish; flights below dull blackish with greyish inner edges; beak crimson, base of upper mandible brown; feet rosy flesh-pink; irides deep red. Female above browner, with only a slight yellow shade on the mantle; crimson of face and throat replaced by greyish ash, the latter with ill-defined narrow buff bars; the whitish bars on the remainder of body broader; beak and feet dusky; irides light brown. Hab., "Loango Coast into Benguela, and in East Africa from Nyassaland to Southern Abyssinia." (Shelley.)

Shelley says ("Birds of Africa," Vol. IV., p. 170): "In Benguela, according to Anchieta, it is known to the natives of Galanga as the 'Cossocia,' and at the Capangombe River as the 'Kabalacaxungo.'"

"At Zanzibar, Fischer met with the species in parties of four to six, and found them breeding in the orange-trees. The nest resembled that of *Spermestes seutatus*."

The actual statement of Fischer is to the effect that the nest, which he found abundantly in May, June and July, resembles that of *Spermestes cucullata*, consisting of the same materials; its circumference is greater by one half: with a side entrance.

Reichenow tells us that the nests of *S. cucullata* are domed structures, very large and firmly compacted of fine grass.

Although this bird has, from time to time, been exhibited at our bird shows, it is by no means so familiar an object as the crimson-winged species.

The late Dr. Russ, under the impression that he had secured a new species, redescribed it in honour of his friend Mr. August Wiener, and consequently it has frequently been spoken of as Wiener's Waxbill.

CRIMSON-FACED WAXBILL (*Pytelia melba*).*

Above olivaceous-yellow; lower rump and upper tail-coverts crimson, shaded scarlet; inner portion of quills dull brown; tail black; the outer webs strongly suffused with crimson; crown and nape, sides of neck and ear-coverts slate-grey; forehead, front of cheeks, chin, and

* I quite agree with Captain Shelley that the name *Zonogastis*, proposed by Cabanis for the next two species, should be ignored.

throat bright scarlet; lores dusky; fore-neck golden olive; chest yellowish, spotted with white at the ends of the feathers, and barred subterminally with black and white; remainder of under surface regularly barred with black and white, most distinctly on the sides; thighs ashy brown; lower abdomen and under tail-coverts white, the latter buffish; under wing-coverts ashy whitish, yellowish towards edge of wing; flights below ashy with paler inner edges; beak crimson; feet pale brown; irides red. Female duller and with the scarlet of the head replaced by ashy grey; throat pale ashy, faintly barred with white; yellow wanting from fore neck and breast; under surface less strongly barred and spotted. Hab., Loango and the Congo into Damaraland on the west, and eastward from Natal to the Equator.—Shelley.

According to Shelley ("Birds of Africa," Vol. IV., Part 1, pp. 274, 275):—Mr. Monteiro met with it at Leanda, Katumbella, and Dombro, where he found it "called by the Portuguese 'Marachao,' and much esteemed as a cage-bird on account of its marvellously sweet song." Andersson writes: "This Finch is found sparingly in Damara and Great Namaqualand, and usually occurs in pairs; its favourite resort is low bush and old abandoned village fences, whence the Damaras call it the 'Kraal Bird.' Its food consists of insects." They live generally in pairs in the thick bush near the ground, and are not shy.

"At the Zambesi Mr. Boyd Alexander found the species locally distributed, the male sex predominating. In September the young were abroad. On one occasion, September 8th, we observed a pair of birds feeding four young ones perched in a row on a branch, and they were by no means shy, allowing of a close approach."

Captain Shelley describes the nest (p. 276) as "built of dry grass, very roughly put together, with no extra lining, and placed in a low stunted bush, about three feet from the ground. The egg is pure white."

This species, like the two preceding, has been exhibited at the Zoological Gardens, and of late years specimens of *P. melba* have been exhibited at various bird-shows. Mr. Hawkins' pair of the species is a well-known exhibit.

YELLOW-THROATED WAXBILL (*Pytelia citreior*).

The male differs from that sex of *P. melba* in having no scarlet on the lower throat, which (with the fore neck) is golden yellow; thighs white; beak dull red; feet fleshy brown; irides pale brown (Witherby), red (Heuglin). Female has no red or yellow on head or throat; forehead ashy-brown, like the crown, sides of head paler ashy; chin and throat white narrowly barred with ashy-brown, most strongly on lower half, where the alternate brown and white bars are of equal width; on the rest of underparts the brown bars are paler, rather broader and more confined to the sides. Hab., Senegal River to Old Calabar, eastward to the Nile.—Shelley.

The following notes are from Shelley's "Birds of Africa," Vol. IV., Part 1, p. 272:—Witherby writes: "Wherever the Sout-trees were thick enough to form a wood these birds were generally to be found." Mr. A. L. Butler writes: "Common in the Sout-trees round Fataha and breeding there in January. Its call-note is a long plaintive whistle." Heuglin says: "They were generally met with singly or in pairs frequenting clumps of trees and bushes, and hopping to and fro from the lower branches to the ground; they were never found among rocks and rarely in the open grass country." This species also has been exhibited at the London Gardens.

CORDON BLEU, OR CRIMSON-EARED WAXBILL

(*Uraginthus phoenicotis*).

The cock Cordon Bleu is of a mouse-brown colour above; the rump and upper tail coverts of a bright lazuline blue; tail dull Prussian blue; cheeks, throat, and breast lazuline blue; a large crimson crescent on the ear-coverts behind the eye; the eye itself has a crimson iris and is bordered, in this sex, by a narrow pale zone; the remainder of the under surface, with the exception of the feathers covering the thighs (which are partly blue), is of a pale dove brown colour; feet flesh coloured; beak crimson, tipped with blackish. The hen chiefly differs from the cock in the absence of the crimson patch on the cheeks. Hab., "Tropical Africa between 17 deg. N. lat., and 10 deg. S. lat."—Shelley.

Capt. Shelley calls this bird *U. bengalus*, but I see no advantage in setting aside a name long familiar to ornithologists for the sake of one which may have been given in ignorance of the habitat of the species: then again the name "*mariposa*" is, I think, hardly classical, though a familiar Spanish word.

According to Von Heuglin, this bird is not very abundant in Abyssinia, and, as a rule, is seen either



THE CORDON BLEU.

singly or in pairs in thorn hedges near villages or farms and in wooded country near water. The nest is said to be untidy and without definite shape externally, resembling little stray collections of straw; a slanting covered entrance runs upwards into the nest-cavity, which is neatly lined with grass, feathers, and wool. The eggs are of the usual white colour, and number from three to six.

The following notes are from Shelley's "Birds of Africa," Vol. IV., pp. 187-190:—"At the Gambia Dr. Rendall took a nest containing seven white eggs; this nest was built in the long grass and was a slight structure." "Böhm procured specimens at Kakoma and in the Ugogo country, and found it in pairs or family parties, frequenting alike the bushy country by the water-side, the dry grassy plains and the outskirts of villages, and observed it once soar in the air. Fischer remarks that, like many of the other small African birds, they frequently breed in the proximity of wasps' nests, and amongst the homes so placed he found four of the present species, three of the Sunbirds, and one of *Spermestes scutatus*. He also observed a pair of these birds breeding in a deserted nest of *Hyphantornis bojeri*."

Mr. A. L. Butler writes to me:—"At Jebel Ain, on November 15, 1902, I put a hen bird off her nest. The nest was oval horizontally, with the entrance at one

* I follow Shelley's nomenclature for the genus here, as the Cordon Bleus are far more like the Violet-eared Waxbill than the typical Astrilds.

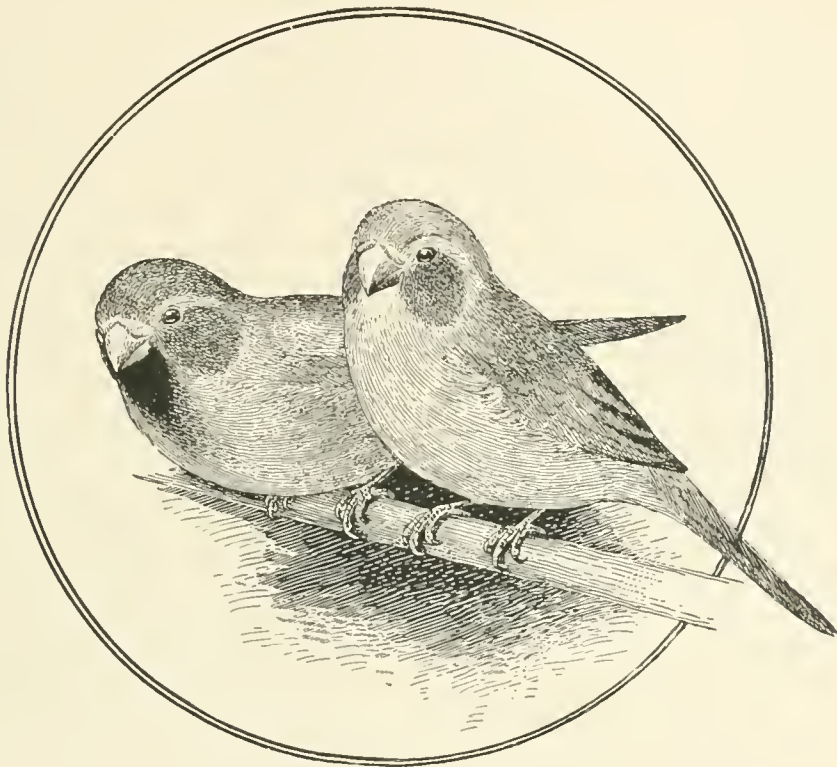
† Captain Shelley believes Bengala to be a corruption of Benguela.

end, and was composed entirely of fine grass, and well hidden at the base of a thorn bush by a thick growth of the same yellow grass as the nest was composed of. The eggs, four in number and pure white, would be hard to distinguish from those of many of the other small Weavers."

According to Mr. Jackson, writing of the species as seen by him at Kibwesi, near the northern base of Mount Kilimanjaro: "This pretty little bird is found everywhere in the country. Its nest is made of dry grass, and is found in various positions, such as in a low bush, in a mimosa or acacia tree, thirty feet from the

of all the Waxbills. Only well-feathered specimens should be purchased, and always in the spring; moreover, it is best to purchase several pairs. If these points are attended to, a sound pair may be secured which will live for years.

Formerly it was supposed that the Cordon Bleu (or "Butterfly Finch," as the Germans call it) could not be kept at a lower temperature than 70 degrees Fabr., but I kept my first pair, under most unfavourable conditions, at a winter temperature often falling to 40 degrees, for eighteen months. Since that time I have had a bird in good health and lively at a temperature of



VIOLET-EARED WAXBILLS.

ground, in the thatch of a native hut, or in the deserted nest of the common Yellow Weaverbird."

The call-note of the Cordon Bleu is a sharp thin whistle, usually twice uttered, and not unlike the call-note of our English Blue-tit. Its song, which is only heard in the breeding season, is usually sung as an accompaniment to a ridiculous dance; moreover, the cock, like many of these small Weavers, always holds a long straw or bent in its beak as it sings, which adds to its grotesque appearance; the song itself is of no great account, but is bright and lively—"Tezier, tezit, tezit, tezer," very shrilly uttered.

This is one of the most abundantly imported and unfortunately, until acclimatised, one of the most delicate

24 degrees. Lastly, the Rev. C. D. Farrar has both kept and bred this tiny Finch in a large garden aviary in Yorkshire.

In 1898 I had five examples of this species, three of which had been in my possession for two years; one of these was still in excellent health at the end of 1907. On the other hand, I bought two pairs, apparently in the best possible condition, in 1906, and shortly afterwards, when the weather became warm enough, turned a pair into an outdoor aviary in the hope of breeding the species, and the hen of the other pair into the indoor aviary in which the old cock bird lives. Next morning both hens were dead, and shortly afterward the cock out-of-doors also died. I gave away the odd bird, which

seemed likely to live. Hitherto I have not bred the species; but on the Continent experiments in breeding it have been carried on for upwards of a century. Charming as it is, the Cordon Bleu is always cheap, and (on that account perhaps) Englishmen seem not to take pains to breed it.

BLUE-BREASTED WAXBILL (*Uraginthus angolensis*).

Male very similar to the preceding, but perhaps with the blue colouring brighter and with no crimson ear-patch; beak purplish; feet fleshy brownish; irides red. Female with the blue on the under-parts much more restricted. Habitat, Angola and Nyassaland to Natal, absent from Namaqualand and Cape Colony, according to Shelley.

The following notes on the wild life are from Stark and Selater's "Birds of South Africa," Vol. I., pp. 103-104: "These beautiful little Waxbills are usually met with in small parties, but occasionally in autumn, after the young have flown, in very large flocks. They prefer localities which are partly open, partly overgrown with scrub or low trees, and are specially fond of scattered mimosa bushes, in which they take refuge if disturbed when feeding on the ground on their favourite grass-seeds. When frightened they rise with a shrill twittering to take shelter in the nearest bushes. In spring both male and female sing not unpleasantly. Although the adults appear to subsist entirely on grass-seeds, the young before they leave the nest are fed on small grubs and insects. The nest is invariably built in a bush, often in a low mimosa, and is generally placed in a fork at a height of from three to eight or nine feet. At first sight it looks like a ball of dried grass carelessly thrown into a bush; on investigation a small side entrance, nearly concealed by the projecting ends of grass-stalks, may be found, leading to the interior, which is smoothly and warmly lined with finer dried grass and feathers. Three or four eggs are laid. These are pure white, and rather round in shape. They average 0.70 by 0.55. Mr. Andersson found this Waxbill nesting in Ondongo. A nest taken by him on February 2nd, 1867, was constructed of grass, and had no internal lining. It was built in a palm bush, six feet from the ground; the eggs were five in number."

Mr. Reginald Philipps gave an account of this species as observed by him in captivity in *The Aricultural Magazine*, N.S., Vol. I., pp. 120-124: a good coloured plate, representing both sexes, accompanied his article.

The London Zoological Society received five specimens in January, 1890, and since that time various private bird-lovers have possessed it. I thought I had secured some myself a few years ago, as I had undoubtedly cock birds without crimson on the side of the head, but at the next moult the patch appeared.

VIOLET-EARED WAXBILL (*Uraginthus granatinus*).

The male above is chestnut, becoming greyer on the lower back; wing-coverts and flights greyish brown, with redder margins; upper tail-coverts and base of forehead bright blue, the latter continuous with a superciliary line; tail black, with bluish edges to the feathers; lores dusky, eyebrow, ear coverts, and sides of face bright lilac; base of cheeks and front of throat black; under surface chestnut with the lower abdomen and vent blackish; under tail-coverts shining blue; beak purplish, with the tip red; legs purplish grey; iris red, eye-ring red or greyish-drab.

The female is greyer above and yellower below, the

throat whitish; the lilac on the face paler, no blue on the under tail-coverts.

Stark ("Birds of S. Africa," Vol. I., pp. 104-105) writes: These beautiful Waxbills appear never to congregate in large flocks, but are either met with in small parties of five or six, or more usually in pairs. They keep much to localities covered with low bushes, and especially with scattered mimosas, and generally feed on the ground between the bushes, often on bare spots, on grass and other small seeds.

"A nest taken in June, in the Northern Transvaal, was built about 4ft. off the ground in a thorny bush. It is round in shape, with a side entrance, and is loosely constructed of dry grass lined with a few feathers. The eggs, three in number, are pure white and measure 0.72 by 0.50. It is somewhat curious that this delicate-looking little bird should breed in mid-winter, when the nights are decidedly cold, but I have frequently noticed the seeming indifference of the South African small birds—including some of the Sunbirds—to temperature. Many breed in mid-winter, even on the bleak mountains of Western Cape Colony. Not infrequently the same species will nest again in the height of summer."

Although this species appears to have been first imported into Europe in 1754, it has never become common in the bird market, and to this day always commands a high price. I remember that the first examples I saw exhibited at a bird show were sold by the late Mr. Abrahams for £10 a pair, and even now, since both Mr. Hamlyn and Captain Hiersbrugh have brought over consignments, the usual price is about £4 for a pair.

Five specimens were presented to the London Zoological Society in 1890. In 1906 Mr. Philipps published an interesting account of his experiences with four or five specimens of the species: he praises the song, but evidently considers the Violet-ear a dangerous associate for other small birds, one of his having, with a single peck, killed a Cuba Finch which had approached too near to it. His opinion agrees with my own that, however hardy it may appear to be in South Africa, it cannot stand the damp, chill atmosphere of our cold months. His article is accompanied by a coloured plate of both sexes.

In 1904 Mrs. Vivian wrote to me saying that her Violet-ears had gone to nest, in Portugal, at the beginning of January, building in a small covered box; two eggs were laid in the box and others probably on the ground. After sitting for three days the hen deserted the nest; she, however, built again and laid two eggs, but if these were hatched no notice of the fact was published.

In 1906, through the kindness of Miss Joan Gladstone, I became the owner of a beautiful pair of the species, which reached me on May 19th. The weather being encouraging, I turned them into my smaller outdoor aviary, and hoped I should have good luck with them. It was a vain hope, for on the 21st the hen dropped dead while flying from the open to the covered part of the aviary, and although her loss did not appear to affect the cock bird, he evidently must have fought with another bird—either *Munia pectoralis* or *M. flaviprymna*, and had the worst of the encounter. I found him on the 26th looking sick and sorry, with a nasty bare patch pecked on his forehead, and on the following day he also died.

In 1907 (*The Aricultural Magazine*, N.S., Vol. V., pp. 325-339) Mr. Philipps gave a further account of his Violet-ears and their attempts to breed in his garden aviaries. Unfortunately, owing to the damp and rain they were not perfectly successful.

CHAPTER XIII.

GRASSFINCHES AND MANNIKINS

(Muniina).

The Grassfinches and more typical Mannikins are practically one group, differing slightly in colouring. These birds are as a rule stouter and more clumsy in outline than the Waxbills; when dancing they depress rather than raise the beak, puff out the feathers of abdomen and flanks, and raise themselves up and down with lateral twistings—a kind of dance in which the feet do not leave the perch—and most of them sing weakly, a sibilant, almost inaudible, sound being produced, or a vibrant humming, with a few weak sounds like the creaking of a boot with a thin, high whistle at the end of it. The Silverbills, the Java Sparrow, and the Chestnut-breasted Finch sing better than the others, their songs being perfectly audible and not unpleasant, whilst the Masked Finch, Zebra and Bichen's Finches utter little toy-trumpet notes, the Parson Finch a short, mellow little flute-like *strophe*. These last-mentioned birds also seem to make less preparation for their song, merely pulling up the feathers of the head and throat, and bobbing the head up and down. Some of the Grassfinches, as well as the Green Amaduvade, drink after the manner of pigeons, sucking up the water and swallowing it without elevating the beak.

Grassfinches.

CRIMSON FINCH* (*Nechmia phaeton*).

Its general hue is crimson, brightest on the base of the forehead, sides of face, upper tail-coverts and flanks; the lower back and primaries are brown, the crown and nape dull brown, the former dark in front; the sides of the breast spotted with white, the centre of body below black; under wing-coverts and inner webs of flights below yellowish; beak carmine, broadly whitish at base; feet reddish; iris brown.

The female is paler than the male, the back greyer, the throat and chest greyish brown, the flanks more freely spotted, breast and abdomen buff whitish.

Inhabits the moist meadows of Northern Australia.

In a wild state this bird forms a flask-shaped nest in *Pandanus* trees or adjacent shrubs, or even among the stronger grass stems. The eggs number from four to five, and are white.

In Germany this bird is called the "Australian Amaranth" and the "Sun Astrild." It has such a bad reputation as an almost invariable murderer of other small birds that I have never cared to add it to my collection. It is, indeed, a showy little species, though I much prefer many of the commoner and cheaper kinds, and it always commands far too high a price when one considers its malicious disposition. It is also undoubtedly very sensitive to cold. It has been bred in captivity.

PARROT FINCH (*Erythrura psittacea*).

Male with the head (excepting the back of the crown), the throat, rump, and closed tail vivid scarlet, and the remainder of the body brilliant grass-green; the flight feathers are dull brown, with greenish or yellow edges; the tail feathers, when open, are seen to be blackish, with crimson borders; beak, brownish black; feet,

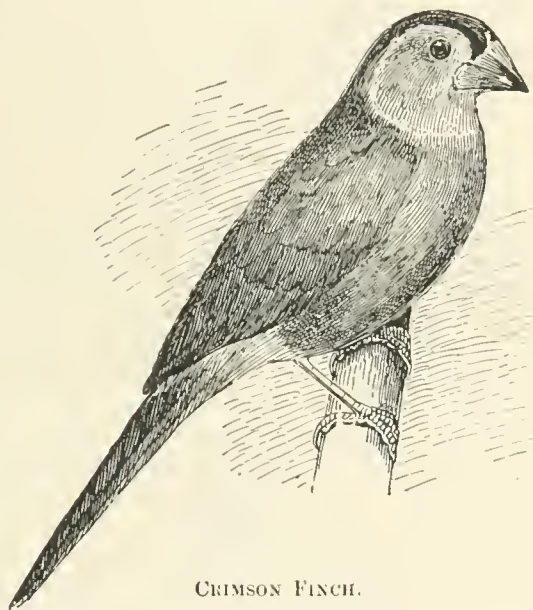
* The name "Australian Fire-finch" is misleading, because this species is certainly not a Waxbill though perhaps more nearly related to the *Estrildinae* than any other existing Grassfinch.

smoky brown; iris, dark brown. Female duller, the red on throat and forehead rather less extensive and the feet paler. Hab., New Caledonia.

I have not come across any notes on the wild life of this bird, but it has been freely bred in captivity in Germany by Lieut. Hauth, in France by Mr. Savage, in England by the late Mr. Wiener, Mr. Phillipps, Mr. St. Quintin, and Mr. D. Seth-Smith. Its favourite nesting-receptacle appears to be a straw hat, with a round hole cut near the back of the crown, and the rim tacked to the aviary-wall. In a snugger of this kind Mr. Seth-Smith bred the species year after year without the least trouble.

Mr. Filmer says that the Parrot Finch has no song, but Lieutenant Hauth speaks of an utterance which certainly represents the song of other birds—a loud prolonged *tschee*, followed by a trill resembling the winding up of a watch.

As regards its food, Mr. Seth-Smith says:—"White millet and canaryseed form the staple food of the Parrot



CRIMSON FINCH.

Finch in captivity, but it is decidedly fond of insects of various kinds, and insect food should be frequently given in some form. Green food, such as flowering grass and chickweed, should be freely supplied in the summer, but the latter must be given with extreme caution during the winter months." Coming from New Caledonia, the price of the Parrot Finch is always high, usually from two to three pounds for a pair. I was offered a beautiful pair for £2 some years ago, but I had just lost a pair of small birds for which I had given that price, and had promised myself that I would not repeat the extravagance.

THREE-COLOURED PARROT FINCH (*Erythrura trichroa*).

Above grass-green, rather paler at back of crown and sides of neck; bastard-wing and primary-coverts blackish; flights, excepting inner secondaries (which are green) dark brown, with green edges; rump, upper tail-coverts and central tail-feathers dull crimson; other tail-feathers blackish, crimson on outer webs; forehead and

sides of head blue, blackish at base of forehead, lores and base of cheeks; under surface lighter green, especially on throat and breast; thighs buffy yellow; under wing-coverts and axillaries bright buff, the latter tinged with green; flights below dusky, their inner webs bright buff; beak black; feet pale brown; irides black. Female altogether duller. Hab., Moluccas, New Guinea, Caroline and Solomon Islands.

Wallace found this species in Ternate at a height of 2,000 feet; but according to Dr. Guillemard (P.Z.S., 1885) it is not confined to the mountains, but is obtainable at a considerably lower altitude.

There seems to be remarkably little published respecting the wild life of the Parrot Finches, but Dr. Russ quotes the following from Von Kittlitz's account:—"In

blackish; the two middle feathers blackish in the middle, longer than the others, and terminating in needle-like hairs, whence the bird derives its name; the cheeks, throat, and front of breast cobalt blue, the blue of the fore-chest shading almost imperceptibly into rose-velvet, the sides, vent, and under tail-coverts golden brown; the beak is black, and the feet brownish flesh coloured. The hen differs in the absence of the blue and vermilion of the under parts, which are replaced by green and golden brown respectively. Hab., Southern Tenasserim, the Malay Peninsula, Sumatra, Java, and Borneo.

Mr. John Whitehead met with this lovely bird in large flocks in Northern Borneo in the Dusan rice-fields, and says that they were especially active late and early in the day.

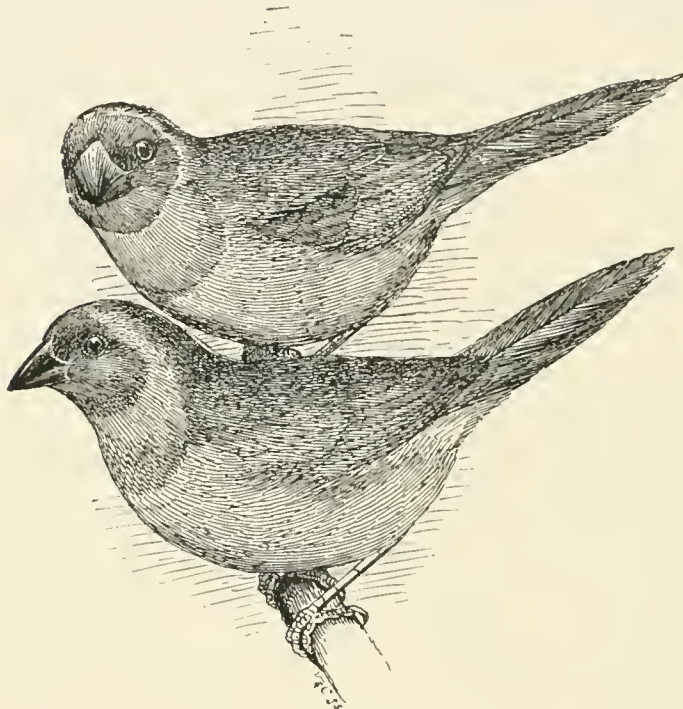
"Though their plumage is composed of the brightest of colours, these birds are difficult to see when settled in the jungle, into which they fly on being alarmed." (*The Ibis*, 1889, p. 436.)

There is some resemblance in colouring between this species and the larger Bunting known as the American Nonpareil.

About the year 1889 two cocks of this species were given to me by the Hon. Walter Rothschild (who for several years was good enough to add any pretty little species which he chanced to see in the bird shops to my collection). As they appeared to be in fairly good health, I turned them into my bird-room with other ornamental Finches. I supplied them with paddy-rice, grass-seed, grass in the ear, spray-millet and egg-food, in addition to the staple seeds, white millet and canary; they also had a good patch of fresh turf to pick over; nevertheless, in about three weeks they were both dead, and a post-mortem examination revealed an unhealthy condition of the liver and spleen and violent inflammation of the intestines.

On February 19th, 1897, I purchased a pair and turned them into one of my large flight cages. At first these birds were very wild, and always roosted close to the back of the cage, but in time they became a little more confident, though never really tame. The hen was very weak, and for a month could only reach the perch by running up the wire front, then for a season she seemed entirely to recover, but in August the weakness returned, and she died before the end of that month. The male, however, retained its health until July, 1898, when, at the commencement of its moult, it also died. I found that these birds would not touch spray millet, but white millet, canary and oats exactly suited them; in fact, oats are an excellent substitute for paddy-rice when the latter is not readily obtainable, but the Pintailed Nonpareil certainly prefers rice.

In July, 1906, a fairly large consignment of this species arrived in the London market, and my friend Miss Gladstone kindly sent me a pair on the 15th; unfortunately the cock died three days later, whereupon she ordered a second pair to be sent to me; the cock arrived with a broken leg, and the supposed hen was a young cock; both were dead by the 29th. Miss Gladstone then ordered two cock birds to be sent to me; both were in the young plumage when they arrived on August 2nd:



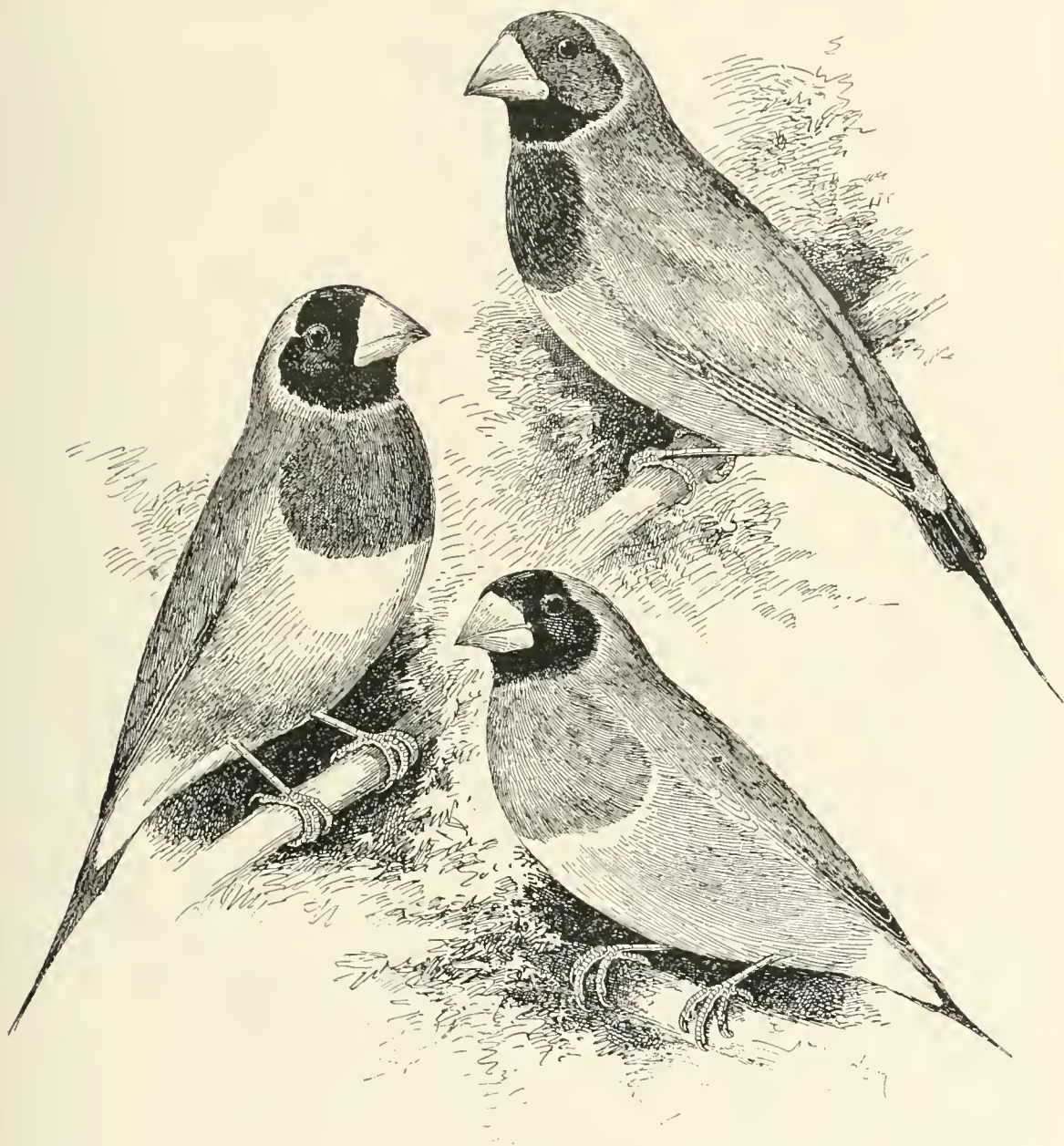
PARROT FINCHES.

its home in the island of Ualan this beautiful little bird is less rare than it seems to be owing to its cunning and secretive manner of life. It lives singly (or in pairs) almost everywhere where there are banana plantations and the like, and strives to keep concealed near to the ground. If it is flushed, it flies for a long distance, uttering its call-note—a sharp and fine *zitt, zitt*. The collector did not hear a song. Its food consists of small seeds, especially the seed of a kind of thistle."

Russ was of opinion that there was little prospect of this species ever being imported; but, for many years past, examples have been occasionally exhibited at the Crystal Palace and other bird-shows. Occurring, as it does, in many islands, I should have thought it far more likely to come to hand than the true Parrot Finch.

PINTAILED NONPAREIL (*Erythrura prasina*).

The Nonpareil cock is of a bright sage-green colour above; the tail-feathers vermilion-red tipped with



GOULDIAN FINCHES.

BLACK-HEADED (MALE).

RED-HEADED (MALE).

BLACK-HEADED (FEMALE).

one came into the full colour with bright vermilion underparts, the other had the underparts of a deep sandy buffish colour. The brighter cock died on April 30th, 1907, and on May 12th I turned the surviving pair into my smaller outdoor aviary in the hope of breeding the species. They were exceedingly active, always together, frequently examined the straw hat and other nesting-receptacles, but never went to nest. I did not bring them indoors again until October 7th, but neither the early frosts nor fogs seemed to inconvenience them, and I am sure that the five months in the open air greatly invigorated them. The cock died April 14th, 1908.

In Germany the Pintailed Nonpareil was bred by Lieut. Hauth in 1886.

GOULDIAN FINCH (*Poephila mirabilis*).

The male red-head has the top of the head to beyond the middle, the face and cheeks carmine-red, edged outwardly by a narrow black stripe which unites with a black patch covering the chin and centre of throat; beyond this comes a line of almost metallic cobalt-blue, shading on the back of the head into peacock-green, and on the neck and back into golden-green; the light feathers are blackish-grey, with pale and partly green tinted edges to the outer webs; the upper tail-coverts are almost metallic peacock-green, shading into cobalt-blue; the tail has the two centre feathers black, elongated and tapering to a fine point, the remaining feathers blackish with pale tips; under tail feathers white; the breast is completely covered by a broad belt of intense violet-ultramarine, which in life can only be compared with the colouring of the most brilliant blue pansies; the belly is bright saffron-yellow; the legs and beak flesh-pink, the latter tipped and tinted with rosy carmine. The female is altogether duller and paler than the cock, the edging of the crown and gorget pale green; the carmine frequently much more restricted, sometimes only represented by a few feather-fringes; the neck, back, and upper wing-coverts more olive, the lower back and upper tail-coverts pale emerald-green; the central tail feathers decidedly shorter; the breast rosy-lilac, the hind chest and abdomen pale yellow in the centre and fading to white on the vent. Hab., Northern and North-Western Australia.

This beautiful bird has three varieties, in which the face is either black (*P. gouldia*), carmine red (*P. mirabilis*), or yellow (*P. armitiana*). They are in no sense species, because, in the first place, a red-faced male and black-faced female were shot by Dr. Ramsay's collector from the same nest in a wild state; in the second place, when sexes of both forms are associated in the same large aviary the black-faced hen usually deserts her presumed natural mate and joins the male red-faced variety; and lastly, because Dr. Ramsay bred all three varieties from a pair of black-faced birds in his aviary at Sydney. In addition to these facts, it is noteworthy that there is considerable variation in the amount of carmine on individual red-heads, and especially in the female sex. Some hens only have a few red feathers on the black, many have a fairly large red patch surrounded by black, and a few have the red as well developed as in the best-marked cock birds.

The dome-shaped nest is, in a state of freedom, usually situated in a tree or bush not far from the ground, and the white eggs are frequently five in number. In captivity it is by no means easy to breed unless kept in a large garden aviary. I believe that in such an enclosure Mr. Meade Waldo was successful in rearing young out of doors even at Christmas time; he consequently considers the species very hardy.

Mr. Reginald Phillips was, I believe, the first to

breed it in this country and in a room, the birds having two large flight-cages at their disposal and being permitted to fly across from one to the other. In outdoor aviaries it has been bred by various aviculturists, but unfortunately, for a good many years, I was obliged to attempt breeding it in warmed indoor aviaries, and I failed every time. In a moderately warm aviary under cover the Gouldian Finch, if allowed to breed in the winter, usually succumbs to egg-binding; but this is, unhappily, often the case in the height of summer.

Altogether I suppose I have purchased, at different times, at least fifteen pairs of Gouldian Finches. In 1896 I secured a batch of eight birds in nestling plumage: of these, five died in moult, leaving me three cock blackheads in perfect plumage; one of these died in 1898 and a second in 1900; the remaining bird lived on until July 26th, 1902. As its age increased this bird became more and more melanistic with every moult. At its death it was so remarkable in colouring that I presented it to the Natural History Museum, and published a full account of it (*The Ibis*, 1903, pp. 674-676). On May 25th, 1905, I purchased two pairs, one of the red-headed variety (*P. mirabilis*), the other of the black-headed variety (*P. gouldia*). I turned *P. mirabilis* with *P. gouldia* into a 16-foot aviary indoors and *P. gouldia* with *P. mirabilis* into a 30-foot aviary in the garden. The hen indoors died egg-bound, and was replaced on August 2nd, but it also died shortly afterwards. The pair outside went to nest in an old straw hat tacked on the wall, but at first without result; later they again nested in the same receptacle, and early in September I heard young birds. They remained so long in the nest that I feared they must have died, but on October 9 two vigorous youngsters flew; they were as large as their parents, but of course in the greenish and grey livery of the nestling, and with the characteristic blue head-like warts at the base of their beaks. On the 13th both young birds could feed themselves.

After several sharp frosts, during which I have seen my Gouldians bathing as soon as the ice had melted on their water-pan, and thoroughly enjoying it, I eventually got scared by the commencement of the November fogs and brought them indoors. Meanwhile my cock *P. mirabilis* indoors had died. The two youngsters were long coming into colour; the male, however, was fully coloured by June 17th, 1906, but the female not until August 16th. The male typical *P. mirabilis*, the female typical *P. gouldia*.

In February, 1906, I purchased a magnificent pair of *P. mirabilis*, hoping to breed from them, but they both died just as the weather became mild enough to turn them out, so I had to start again with my old pair. They again reared two young ones, but I left them out too late, and the young cock was killed by the November fogs; the young hen came into colour in the summer of 1907. In the latter year my old cock bird broke his wing and died just when the season was commencing, and thus for the time stopped my efforts to breed a stock of this lovely Finch.

There is not the least doubt that after a season in the open air the old birds are greatly invigorated, and that the young bred out of doors are as hardy as any species. Seen indoors, the Gouldian Finch seems a dull, heavy, anæsthetic little creature, but outside it is swift on the wing, lively in its manners, has a cheery little chirp, is confiding, and in all respects delightful.

Messrs. Payne and Wallace have printed an interesting account of their method of capturing Gouldian Finches in a small pamphlet: an extract has been published in *The Avicultural Magazine*.

I believe that, when kept warm, Gouldian Finches live

well in a flight cage, and that millet in the ear is absolutely necessary to their health; they always begin to fail if it is withdrawn for a few days.

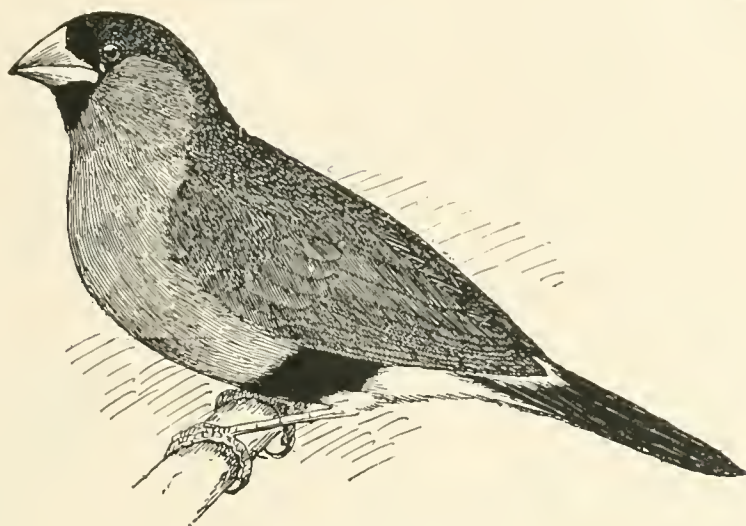
The young are fed chiefly upon seed regurgitated from the crops of the parents; I believe that the latter also get a certain amount of minute insect-life from the bushes; they never, however, seem to touch either green food or any soft mixture.

There is a wide gap between the preceding and the other species of *Poephila*, and I could wish that the latter had been referred to a different genus. The Gouldian Finch has the typical song of a Grassfinch; the Masked and probably the White-eared Grassfinches have nearly the note of the Zebra-finch, but the Parson-finch and Long-tailed Grassfinch have a musical little song, consisting of eight notes; the four last have certain colour-characters in common, but not one of them has the slightest resemblance to a Gouldian Finch.

WHITE-EARED GRASSFINCH (*Poephila leucotis*).

Above ruddy cinnamon brown; crown a little darker; rump and upper tail-coverts white, black at the sides; flights blackish, primaries edged with whitish, remaining feathers externally cinnamon brown; tail black; head all round black behind the beak; back of cheeks and ear-coverts white; sides of neck, throat and breast rosy buffish; sides of breast and remainder of body below white, with a large black patch on the flanks; flights below dusky, with rufescent inner webs; beak pale yellow; feet coral red; irides dark brown. Female very similar, but apparently a somewhat slimmer bird. Hab., North Australia.

According to Campbell, the nest and eggs of this bird are undescribed, and all that Gould tells us about it is



MASKED GRASSFINCH.

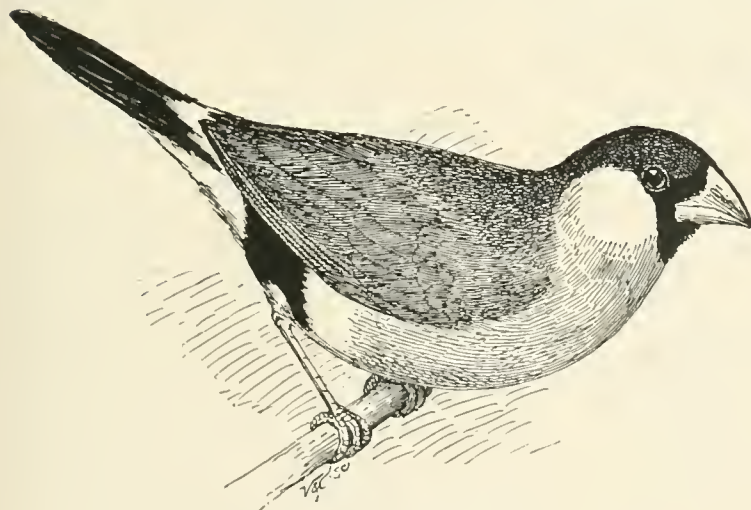
that, "like other members of the genus, it inhabits the open spots of country and feeds on grass-seeds."

Mr. Reginald Phillipps, who had five examples of the species, published a full and interesting account of them, illustrated by a coloured plate, in *The Avicultural Magazine*, 1st ser., Vol. IV., pp. 169-172 and 185-188. His birds built several nests—or "squatting-places," as he calls them—in which there was a lining of feathers; but with no satisfactory result. It is evident that Mr. Phillipps regards *P. leucotis* as extremely closely related to *P. personata*, but nevertheless distinct. Both have the tiny trumpet-note of the common Zebra-finch, to which I believe them to be more nearly related than to *P. gouldiae*, although placed in the same genus with the latter. I have never had an opportunity of securing specimens of *P. leucotis*. In my opinion it would be advantageous to adopt Reichenbach's name of *Chlecchia* for *P. mirabilis*.

MASKED GRASSFINCH (*Poephila personata*).

Above rosy-brown, much more cinnamon on the crown; rump and upper tail-coverts white; flights brown, with rosy-brownish outer borders; tail black; head all round black close to the beak, as in *P. leucotis*; sides of face and under surface rosy-brown; the abdomen and under tail-coverts white; a large black patch on the flanks; flights below dusky, rufescent along inner web; beak clear ochraceous; feet fleshy red; irides red. Female slightly smaller and duller, with less cinnamon tinting on the crown. Hab., North and North-west Australia.

According to Gilbert ("Gould's Handbook to Birds of Australia," Vol. I., p. 423), "it inhabits grassy meadows near streams, feeding on grass-seeds, etc. It was



WHITE-EARED GRASSFINCH.

tolerably abundant, being congregated in flocks of from twenty to forty. When on the wing it utters a very feeble cry of *twit, twit, twit*, but at other times pours forth a drawn-out, mournful note, like that of some of the other Grassfinches."

This species was bred in captivity by Mr. L. W. Hawkins in 1900, and in the same year Mr. Philipps gave an illustrated account of the species in *The Avicultural Magazine*, 1st Ser., Vol. VI., pp. 259-262, in which he says that it has from time to time nested with him, but not satisfactorily.

I purchased a pair of the species in May, 1905, and turned them into an indoor aviary; they carried about hay at various times, and were often to be seen in the company of two hen Zebra Finches, sitting in Hartz cages and pretending to have eggs (their usual note is not unlike that of the Zebra Finch); but up to the end of 1907 they had made no serious attempt at breeding."

LONG-TAILED GRASSFINCH (*Poephila acuticauda*).

Above rosy-brown, more earthy on lower back, wing-coverts and inner secondaries; upper tail-coverts white; the rump crossed by a black band; flights blackish; primaries with whitish outer margins; tail black; crown and sides of head silver grey or greyish white; loreal spot, eyelid and throat black; body below, from throat backwards, rosy fawn-colour; thighs, vent, and under tail-coverts white; a broad black band between the fawn of the breast and the white of the vent; under wing-coverts and edges of flights deep fawn-colour; beak waxy yellow; feet fleshy-yellowish; irides black. Female generally slightly smaller; tail usually longer; black gorget rather smaller. Hab., North Australia.

In its wild state the Long-tailed Grassfinch is said to inhabit the open plains bordering streams, and to feed on grass and other seeds.

According to Campbell, the nesting habits resemble those of *P. cincta*; and that is all I have found recorded respecting the wild life.

Formerly this was a rare species in the bird-market, but in the nineties it began to come to hand more and more frequently, together with its subspecies *Poephila hecki* of Heinrich (*aurantiostriis*, North); in 1905 and 1906 great numbers were brought home by Mr. Payne, and the price dropped to 10s. a pair. I purchased a pair in 1905 which died almost as soon as I got them, and in 1906 I purchased a second pair, which lived, but never bred.

The subspecies (?) or rather variety with orange-red head and feet I received a female of, about the year 1897, which I paired with a cock Parson Finch.

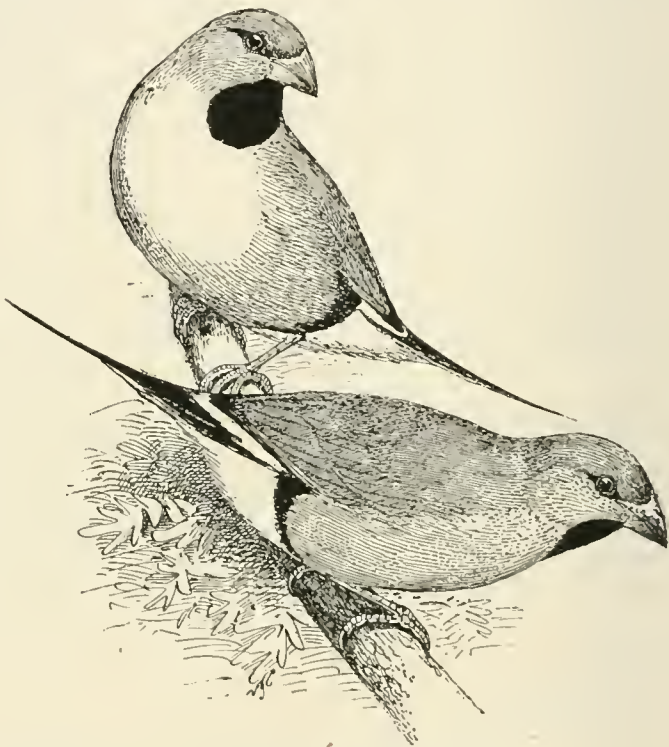
A nest was built in which both birds roosted together, but I believe no eggs were deposited. Eventually a large tumour formed at the base of the upper mandible, which so weakened the Long-tail that one morning (26th June, 1898) I found her floating dead in the water-pan in an inch and a-half of water.

In England the Long-tailed Grassfinch was first bred by Mr. Todd, but subsequently several other aviculturists were equally successful.

PARSON FINCH (*Poephila cincta*).

The head is silver-grey, the beak, chin, throat, and fore-chest black; the back fawn colour shading into vandyke-brown on the wings and rump; upper tail-coverts black, broadly tipped with white, tail black, the two centre feathers pointed and terminating in a short bristle; under parts of body light rufous brown; vent and under tail-coverts white; feet salmon red. The cock usually differs from the hen in its slightly broader head, which is of rather a whiter tint, and the greater extent of the black patch on the throat; the sexes are nevertheless not easy to determine. Hab., North-east and South Australia.

In its wild state this bird frequents open grassy plains



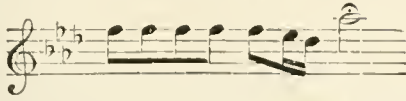
LONG-TAILED GRASSFINCHES.

and forms its nest in long grass or *Pandanus* bushes, laying five white eggs. In captivity it is one of the most attractive of aviary birds, though somewhat aggressive, interfering with the nests of other birds, and violently attacking any bird (no matter how large) which approaches its own. I was much amused one day to see a cock Parson Finch in a grievous rage fly at a Bar-shouldered Dove and pluck a couple of feathers from its back; yet the same impudent little mite made a fast friend of a Bronze-winged Pigeon, close to which he used to sit sometimes for a great part of each day.

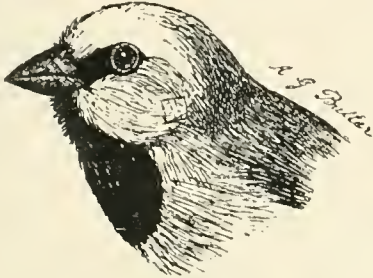
Judging by the self-satisfied actions of this very Tit-like Finch, it would seem to be one of the most conceited of the feathered race; but this assertive impudence is one of the greatest charms of the bird.

* It has been bred by Mr. D. Seth-Smith and Mr. T. N. Wilton.

The call-note is a melancholy kittenish sort of cry, but the song is undoubtedly pleasing:—



When turned loose in an aviary, a pair of Parson Finches will be at home almost immediately, and after picking about on the earth for an hour or so will begin to think about setting up housekeeping; then the singing and dancing begin, and if materials for building are given a nest is soon formed either in a canary-cage



PARSON FINCH.
(Head and shoulders of male.)

or cigar nest-box; in the former it is arched over as a screen from prying eyes, but in the latter a simple open nest is formed level with the opening of the box. Both birds sit, and if the hen bird does not become egg-bound there will be little difficulty in breeding the species. Unhappily this is exactly what usually does happen, so that I have only once been successful, and even then the young were murdered by an unpaired cock of the same species within a day or two of their leaving the nest. Only one pair of this species should be permitted to inhabit the same aviary.

From first to last I suppose I have had about a dozen pairs of the Parson Finch, and although exceptions occur in this as in all species, I do not consider *Poephila cincta* by any means a safe bird for a mixed community of tiny Finches. It is usually an interfering and dangerous little busybody, to whom I have often been indebted for the loss of interesting nests, and occasionally of inoffensive little birds which had perchance excited its evil passions.

In August, 1897, Mr. Abrahams sent me the skin and sketch of a hybrid between a cock Parson Finch and a white Bengalee.

In this hybrid the characteristics of the father are strongly brought out; but a mere examination of the skin would lead anyone to suppose that the mother had been a Striated Finch, to which type the bird appears to have reverted in a remarkable degree.

The large black gorget of the Parson Finch is represented by a slightly more restricted snow-white patch irregularly bordered with black; the chin remains black, but the silvery-ash colour of the crown and sides of the head are barely indicated by a diffused hoary patch on the cheeks; the white rump is also only represented by a slight ashy tinting of the feathers; the vent, as might be expected, remains white; the black belt, extending obliquely from below the wing to the thigh, remains exactly as in the Parson Finch, but is preceded by white on the abdomen; the colouring of the breast is deeper and somewhat grayer than in the Parson Finch, the hinder portion being especially grey tinted.

The colouring of the face to behind the eye, the crown, nape, mantle, and tail are precisely as in the Striated Finch. The form of the beak is exactly that of this species, as also the form of the tail; the base of the lower mandible was evidently whitish, otherwise the beak agreed in colouring with that of *Uroloncha striata*. I think these facts are extremely interesting, as proving, or tending to prove, that the Striated and not the Sharp-tailed Finch was the original ancestor of the Bengalee.

This marvellous hybrid was, unhappily, not bred in this country, but by Mr. F. Kamsties, of Königsberg. When in Mr. Abrahams' care, in 1887, a coloured sketch of it was prepared, from which the illustration above was made.

For some years after 1890 the price of the Parson Finch was very reasonable, but after the nearly related Long-tailed Grassfinch had become a familiar object in the bird-market, the price of Parson Finches rose to about



PARSON FINCH—WHITE BENGALÉE HYBRID.

a level with its handsomer relative; as the latter is far less inclined to be spiteful, I think the dealers made a mistake in raising the price of *Poephila cincta*; the two birds offered at the same price do not now stand an equal chance of going off, since *P. acuticauda* has every advantage to recommend it to the purchaser.

DIAMOND OR SPOTTED-SIDED FINCH (*Staganopleura guttata*.)

General colour of upper surface mouse-brown, greyer on the head; the rump and upper tail coverts fiery carmine red, the tail intense black; the under parts are pure white, with a broad belt of jet black across the chest; sides black, each feather being marked externally with a snowy-white semicircular spot; the beak is crimson, that of the hen being rose-pink at the base of the upper mandible; behind the upper mandible is a patch of black which extends to the eye; feet grey. In order to distinguish the sexes of this lovely species it is necessary to compare the heads side by side, the different colouring at the base of the beak is then easily seen, and the cock will be found to have a slightly broader head. Hab., South Australia to New South Wales, and northward to the Wide Bay District.

In its wild state this bird is widely distributed, and builds its nest of wiry grasses, and of the usual form, in gum or apple trees, or in the sticks forming the foundations of a small eagle's nest. In confinement, however, it appears to prefer a travelling Canary cage to all other receptacles, but owing to the absurd jealousy of the hen it is not easy to breed, as she resists every effort of the cock bird to enter the nest by day, yet insists upon his entering it to pass the night.

About 1889 the male of a pair which I had persisted in entering the nest in the day-time, and eventually his wife killed him. Subsequently she went about moping and calling him until she fell ill and died also. It was years before I had a second pair, for the importation of the species suddenly fell off, so that it must have been about 1895 that I eventually succeeded; they did not, however, live many months in my possession.

I bought my third pair either in 1904 or 1905; the female did not live many months, and the male died at the end of October, 1906. It was a very interesting example, in which some of the breast feathers were tipped with rose-red, an instance of reversion to an ancestral type (in which the breast was doubtless largely crimson, as in the hybrid between the Diamond and Zebra Finches; cf. *The Avicultural Magazine*, N.S., Vol. IV., pp. 345-354, with coloured plate).

The call-note of this species, like that of the Parson Finch, is plaintive and unpleasing, and the song is contemptible, but the love dance is exceedingly ludicrous. I got my artist to draw it from life and reproduce it on the plate of this species in my "Foreign Finches in Captivity."

Like nearly all the Australian ornamental Finches, the Diamond or Spotted-sided Finch is indifferent to cold, and perfectly capable of passing its existence in an open air aviary.

PAINTED FINCH (*Emblema picta*).

General colour above pale brown; flights darker; rump and upper tail-coverts bright scarlet; tail-feathers blackish, tinged with scarlet on the margins; lores, a narrow eyebrow, feathers of orbital region and front of cheeks scarlet; throat and body below black; a few feathers on chin and front of throat tipped with scarlet; centre of neck and chest scarlet; sides and flanks conspicuously spotted with white, the ground colour of the flanks being brown; under wing-coverts yellowish;

under tail-coverts black; upper mandible black, tipped with scarlet, lower mandible scarlet, with a blue patch at the base; feet probably flesh-brown; irides straw-whitish. Female without scarlet on the cheeks, orbital region and throat, and only a tinge on the breast; under surface of body browner and more plentifully spotted with white. Hab., West, North-West, and South Australia, and New South Wales. A. J. Campbell ("Nests and Eggs of Australian Birds," p. 482) quoted the following notes on the wild life by Mr. G. A. Kearsland: "These beautiful Finches were first found in the rocky gorges of McMinn's Range, and subsequently at Stokes' Pass, Glen of Palms, and Bagot's Spring. They are very timid, and somewhat difficult to approach. Although there is no sexual difference in plumage, they vary with age. The scarlet patch, so conspicuous on the breasts of adults, is almost or entirely absent on the young ones, and the rich black on the under parts of the mature birds is also replaced by a smoky black on the young. Several of their nests were seen, which closely resembled those of *Taniopygia castanotis*, but were a trifle larger in size. They were placed on low bushes, built of grass, and oval-shaped. Unfortunately, they all contained young birds. The eyes of the adults being white, give the live birds a remarkable appearance."

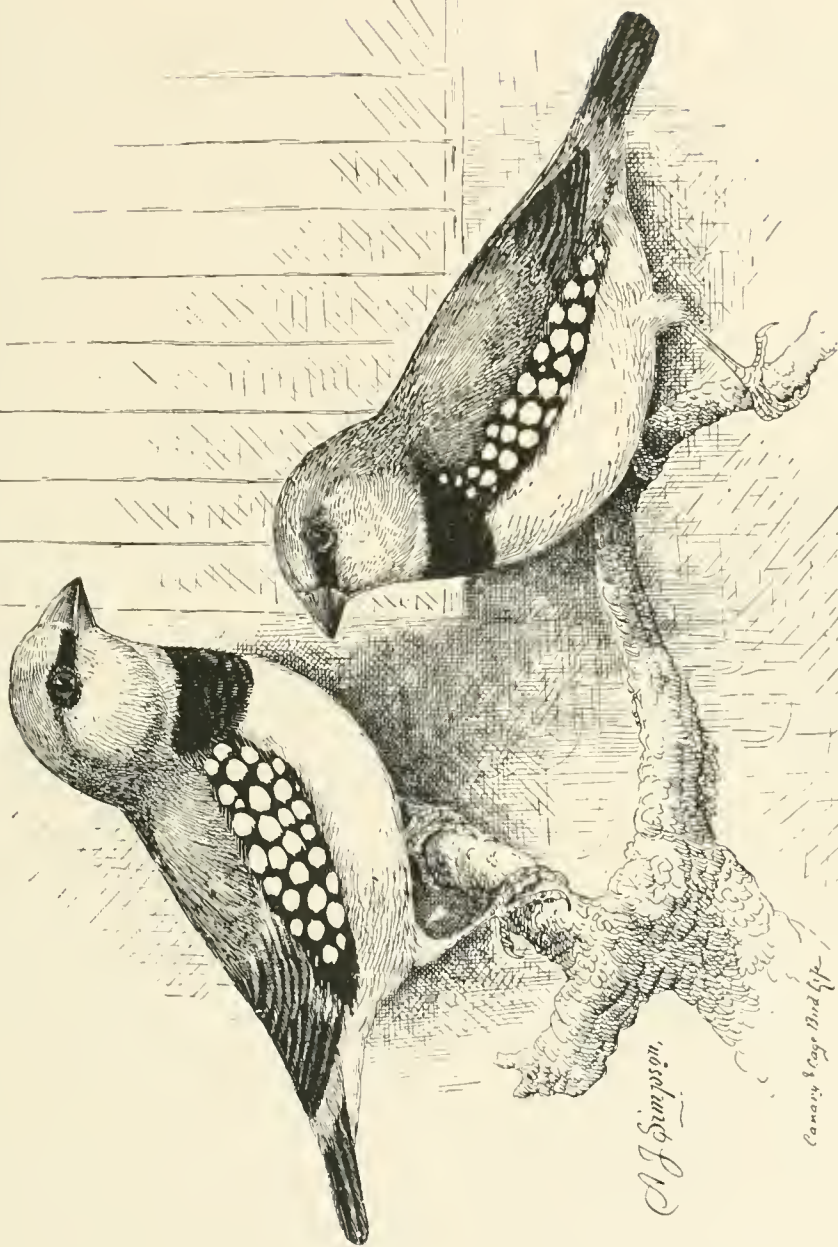
Mr. Campbell describes the nest and eggs as follows:—"Nest.—Bottle-shaped or covered in, with a spouted side entrance; constructed of grasses chiefly, with the addition of portions of other plants; lined inside somewhat sparingly with fine grasses and fur or feathers. Usually situated in a thickly-foliaged tree or bush. Dimensions about 12 inches in length by 18 inches in circumference round thickest part of the body. Eggs.—Clutch, five to seven, occasionally eight; long oval or lengthened in form; texture of shell fine; surface without gloss; colour pure white. Dimensions in inches of a full clutch: (1) .75 by .53, (2) .75 by .52, (3) .73 by .51, (4) .72 by .51, (5) .71 by .52, (6) .69 by .52, (7) .69 by .49." The late Mr. Wiener succeeded in securing specimens of this rare Grass finch in 1869 and 1877, and he saw the dead bodies of some recently imported specimens in 1877; Dr. Russ also mentions that Mr. Preyer, of Trieste, possessed a specimen in 1875, and Miss Hagenbeck sent him one in 1877.

From that date the species appears to have practically disappeared from the European market until Messrs. Payne and Wallace obtained a pair in 1905, which were secured in Italy by the Rev. Hubert D. Astley. In 1907 the same collectors had a second pair in their collection at Bath, but naturally when so few examples are imported the price of these lovely birds is too high to tempt any but the wealthy. In 1908 a fair number came to hand, but the price was excessive. Dr. Russ first pointed out the relationship of this species to the Spotted-sided Finch, though he unaccountably retained it among the Waxbills, and thereby led me astray for a time.

RUFOUS-TAILED GRASSFINCH (*Bathilda ruficauda*).

Above dull olive-green, a little paler on rump; upper tail-coverts vinous, with a transverse ill-defined dusky subterminal bar and pink tips; flights dusky on inner webs; central tail-feathers dull vinous-red; remaining feathers smoky blackish, with vinous-red outer webs; forehead, lores, orbital region, cheeks and chin scarlet; ear-coverts scarlet, dotted with white; throat, sides of neck, breast, sides and flanks olive, rather paler than

* A writer to the *Emu* for 1904 speaks of the nest as small, largely built of sticks, and with a number of pellets of clay in the foundation. This is quite unlike Campbell's description.



DIAMOND SPARROWS.

that of upper surface, especially on throat, spotted all over with silvery whitish spots, smallest on throat, largest and least numerous on the sides; remainder of body below pale creamy yellowish buff; under tail-coverts white; under wing-coverts and axillaries white, edge of wing yellow at shoulder; flights below ashy grey; beak coral red; feet chrome yellow; irides salmon-red. Female with the scarlet on the head restricted to the forehead, lores and orbital ring; olive of under surface paler and greyer, abdomen whiter. Hab., "North-west Australia, Northern Territory, Queensland, and New South Wales" (Campbell).

Mr. Gould saw this bird "rather thinly dispersed on the sides of the river Namoi, particularly along the sloping banks covered with herbage, where it appeared to be feeding" upon seeds of grasses, etc. He adds, "I also frequently observed it among the rushes which grow in the beds of mud along the sides of the water."

In his "Nests and Eggs of Australian Birds," Mr. A. J. Campbell publishes the following notes on the habits of *Bathilda*: "I observed the Red-faced, or, as it is sometimes called, the 'Star' Finch, flying in flocks in company with its pretty crimson cousin, *Neochmia*

freely it would be imported about ten years later I should have waited.

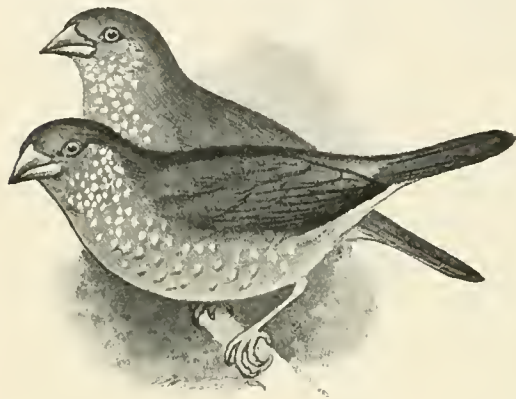
When kept in a flight cage, so far as could be judged by that first pair, the hen has a stupid habit of plucking her mate, so that I lost my male bird within about a month. I then turned her into a large flight with a cock Zebra Finch and hoped to breed Mules. A nest was built in a Hartz cage, and the hen was generally squatting therein, but at the end of six months she died on the nest, having somehow managed to rip open her abdomen. This early loss of a pair of expensive little Finches finally decided me never again to spend so much upon so little, but whenever I should again consider myself at liberty to be extravagant to make sure of having more to show, and that of more lasting material for my money. When nothing remains but a dead body the size of that of an Avadavat one feels ashamed to have squandered pounds upon it.

In 1905 I purchased a pair of these birds, and turned them into my smaller outdoor aviary, where they built in a box and began to lay, but were disturbed by Pectoral Finches; later on the cock bird died. I bought a second pair, and again the cock died. Lastly, in 1906, I bought a very handsome cock bird, which lived about a year. Both hens continued to live and flourish, but they did not seem inclined to pair up with any other species in the aviary. As a rule, the hens of the small Weaving-finches are more delicate than the cocks, but in the present species this rule seems to be reversed.

This Grassfinch was first bred by Mr. Nicholson, and since that date several other aviculturists have been equally successful. An account of the species, illustrated by a coloured plate of both sexes, was published by Mr. D. Seth-Smith (*Avic. Mag.*, 1st Ser., Vol. V., pp. 61-64).

FIRE-TAILED GRASS-FINCH (*Zonæginthus bellus*).

Above brown, narrowly barred with blackish; the primaries indistinctly barred with paler brown on the outer web; rump and upper tail-coverts carmine red; central tail-feathers black, washed towards base with carmine, the remainder with pale brown bars on the outer web; black bars on the head very fine; frontal band, lores, and orbital feathers black; a bare bluish zone encircling the eye; under surface of body pale silvery greyish, barred with black, most finely on throat and front of neck; lower abdomen and under tail-coverts black; under wing-coverts pale tawny, with faint dusky bars; beak crimson, paler at base of upper mandible; feet flesh-coloured; irides dark brown. Female not differentiated, but probably with narrower black bars on the under surface of the body. Habitat, "South Queensland, New South Wales, Victoria, South Australia, and Tasmania, including Kent Group and Furneaux Group in Bass's Strait" (Campbell). Gould says ("Handbook to the Birds of Australia," I., pp. 406, 407): "Tasmania may be considered the principal habitat of the species, for it is universally and numerously dispersed over all parts of that island suited to its habits and economy. It also inhabits New South Wales, but is there far less abundant. I generally observed it in small communities, varying from six to a dozen in number, searching on the ground for seeds of grasses and other small plants which grow on the plains and open parts of the forest. It also frequents the gardens and pleasure-grounds of the settlers, with whom it is a favourite, few birds being more tame or more beautifully coloured than this little Finch, the brilliant scarlet of the rump and base of the tail feathers strongly contrasting with the more



RUFIOUS-TAILED FINCHES.

phaeton, in Northern Queensland." "The eggs of this species in my collection were taken on March 20th, 1877, in the Gulf of Carpentaria district, by Mr. T. A. Gulliver, and were those described by me after my return from Queensland, 1886."

The nest and eggs are thus described by Mr. Campbell, p. 492: "*Nest*.—The usual bottle-shaped structure of grasses, but generally plucked green; lined with finer grass and sometimes a few feathers, and placed in a low bush or in tall grass. *Eggs*.—Clutch, five; long oval in shape; texture of shell fine; surface slightly glossy; colour pure white. Dimensions in inches: (1) .7 by .48, (2) .68 by .48, (3) .6 by .46."

The song of the Rufous-tailed Grassfinch is a barely audible sibilant twittering, and the attitude assumed by the bird is that of a typical Grass Finch, so that Gould was palpably wrong when he referred the species to *Estrela*.

A fair number of specimens of this little Finch were imported between the years 1893 and 1896, but they also commanded a high price (£5 for a single pair not being considered by any means dear). Nevertheless, I thought myself fortunate in obtaining a very perfect pair for less than half that sum. Had I known how

sombre hue of the body. Its flight is extremely rapid and arrow-like, particularly when crossing a plain or passing down a gully. It is a stationary species in Tasmania, and probably also in New South Wales. In the former country I constantly found it breeding in communities, my attention being usually attracted by the enormous nests which they built among the branches of shrubby trees, without the slightest attempt at concealment. They are constructed entirely of grasses and stalks of grass, dome-shaped in form, with a hole near the top for the ingress and egress of the bird. The eggs are five or six in number, rather lengthened in form, and of a beautiful flesh-white, eight and a half lines long and six and a half lines broad. It breeds from September to January, during which period two or three broods are reared. Its note is a single mournful sound, emitted while perched on the low branches of the trees in the neighbourhood of its feeding places."

Mr. North describes a nest taken at Hornaby as having a long narrow neck, 10 in. in length by $2\frac{1}{2}$ in. in width, the nest itself measuring 7 in. in diameter.

Campbell ("Nests and Eggs of Australian Birds," pp. 479, 480) thus describes the nest: "*Nest*.—Bottle-shaped, or covered in with a spouted side entrance, constructed of grasses chiefly, with the addition of portions of other plants, lined inside somewhat sparingly with fine grasses and fur or feathers. Usually situated in thickly-foliaged tree or bush. Dimensions, about 12 in. in length by 18 in. in circumference round thickest part of the body."

This is one of those birds which renders an arrangement of species in a linear series impossible. While probably most nearly related to the Diamond-finch, and doubtless originating from the same extinct ancestor, its style of colouration and marking more nearly resembles that of some of the African Waxbills. The barred character of its plumage is indeed indicated on the throat, breast, and sides of neck of the little Zebra-finch, and as the latter has the sides of the body spotted with white, somewhat after the fashion of the Diamond-finch, I place it next to this species, but the note of the Zebra-finch indicates some affinity to the typical *Poephila*—that is to say, to the Masked and White-eared Grass-finches.

Dr. Russ states that the entire disposition, love-dance, etc., are like those of the Diamond-finch, but its call-note is more prolonged.

Probably the first pair of this bird known to have been imported reached the London Zoological Gardens in 1870. Subsequently specimens were acquired by Dr. Russ, Prince Ferdinand of Saxe-Coburg-Gotha, and Mr. Wiener, but none of these gentlemen succeeded in keeping them very long, though Mr. Wiener states that one specimen lived in his aviary for over a twelve month. As I have stated elsewhere, I strongly suspect that all these aviculturists coddled the birds too much, and they died from insufficient air and exercise. Russ himself admits that some examples sold by Abrahams and in Paris did well, so that Mr. Wiener's favourite explanation for the death of birds which he found a difficulty in keeping—that some special food was lacking—fails to the ground.

Always a prize in the market, although at one time not an especial rarity, if we are to accept Dr. Russ's statement, this beautiful bird has not been seen in Europe alive for many years, yet there cannot be the least doubt that it will reappear in considerable numbers one of these days, and will not only be tested with open-air treatment, but will be successfully bred by some lucky aviculturist.

ZEBRA FINCH (*Tamniopygia castanotis*).

The top of the head, neck, and front of back are pearl-grey, shading into brownish-grey on the hinder part of the back; the tail coverts are white, regularly barred with black; the tail black; on the front of the cheek is a white band edged with black; the ear-coverts of the cock bird are also ornamented by a large patch of tawny, appearing orange at a short distance. The throat and fore-chest are silvery-grey, every feather in the male transversely striped with black, and the whole separated by a black band from the remainder of the under surface. The hinder part of the chest and abdomen are white, slightly stained with buff, and in the male the sides are chestnut, spotted with white; the beak coral-red, feet salmon-red, irides hazel. Female without orange-tawny on ear-coverts, the black barred silver grey throat and fore-chest, and the spotted chestnut sides. Hab., Northern, Western, and Southern Australia.

In its wild state this species wanders about in small flocks, and spends much of its time on the ground, feeding upon seeds of various grasses. It forms a flask-shaped nest of dried grass, stalks, etc., in the branches of a thick bush or low tree, and lays five to six white eggs.

In captivity the nest is formed in any sort of receptacle, but a Hartz-cage is preferred to all others. It is rare for more than four young to be reared in one brood, but I have known as many as six to leave the nest. The young are grey, with black beaks, a white patch behind it; the upper tail coverts barred, but not completely hiding the tail, as in adults. When asking for food the young throw themselves sideways, turn the beak upwards, and clamour incessantly and noisily.

Probably no foreign bird is more hardy or more easy to breed than the Zebra Finch. Moreover, small though it is, when the hen is sitting the cock bird will keep guard outside the nesting cage or box and drive off all intruders. There seems to be no question of prudence. Birds five or six times its own bulk are vigorously attacked, and usually driven off ignominiously.

Since 1890 I have bred this species every year, and at any season, without the least difficulty. Although it can rear its young on seed alone, they are certainly more vigorous when soft feed is supplied daily in a saucer.

As usual with Australian Finches, this bird is absolutely hardy, and may be safely wintered in a large sheltered outdoor aviary.

The song of the Zebra Finch is not unlike the bleating of a kid, it might very well be produced with a penny wooden trumpet; the call-note is a single sound of the same character. In a large aviary unpaired Zebra Finches are rather quarrelsome, but as they never really hurt one another, no harm comes of it. In a small aviary, however, they sometimes partly denude one another of feathers, which, besides rendering them unsightly, sometimes weakens them so that they are liable to catch cold and die.

The Zebra Finch is very freely imported, and never expensive; being extremely pretty, it is a general favourite.

On August 20th, 1897, Mr. Joseph Abrahams wrote to me as follows:—"As some interest seems to have lately been taken in foreign hybrids, I am sending you by post the skins and sketches of two—viz., that of a hybrid between a cock Bicheno and hen Zebra Finch, and that of one between a cock Parson Finch and hen White Bengalee. The latter I had in my place alive over two years, during which time I tried to pair him with all sorts of hens, but he was a perfect demon, for

he killed every one. The skin of the Zebra-Bicheno hybrid is not very good, but as the sketch from life is perfect, you will be able to make out the various points of resemblance."

This skin, as Mr. Abrahams implied, is decidedly imperfect, the ends of the wings, rump, tail and vent having apparently been gnawed away by a mouse. The coloured sketch, therefore, was absolutely necessary to enable me to make either a complete drawing or description of this very interesting bird. At the same time I prepared my drawings almost entirely from the skins, taking careful measurements to ensure (as nearly as possible) accurate life-size representations of the originals. The coloured sketches, though only of about half the natural size, and, being sketched from living birds only, of course not scientifically correct in details, were very useful in indicating the general distribution of pattern and colouring.

The parentage of the Bicheno-Zebra Finch hybrid is very palpable. Curiously, and yet naturally enough, its general character partakes far more largely of the hairy maternal than the far more delicate paternal stock.

In its general form—outline, though not colour, of beak, the presence of a large, though not chestnut-coloured, cheek patch, the barred breast, and white-barred, though apparently much shorter, upper tail-coverts—this hybrid approaches the male Zebra Finch. The beak appears to have been fleshy-white in colour, therefore neither resembles the coral-red beak of the Zebra Finch nor the pale silver-grey of Bicheno's Finch, but a compromise between the two.

On the other hand, the forehead and eyebrow streak nearly resemble those of the father; but this streak, instead of merely running behind the ear-coverts, round the sides of the neck, and across the back of the throat, passes just behind the eye, where it expands into the large cheek patch before noted, which extends over the ear-coverts and unites with a crescentic belt passing obliquely down the side of the throat. The chin and throat are white, as in Bicheno's Finch; but, singularly enough, some of the feathers at the side of the breast and those of the flanks show a sub-terminal black bar, as also do the outer wing-coverts.



BICHENO+ZEBRA FINCH HYBRID.

One very curious effect of the combination between these two birds is the shifting downward of the barred throat patch of the Zebra Finch. So as to fill the area enclosed between the two black bars of Bicheno's Finch, the silver grey tinting of the barred feathers is retained.

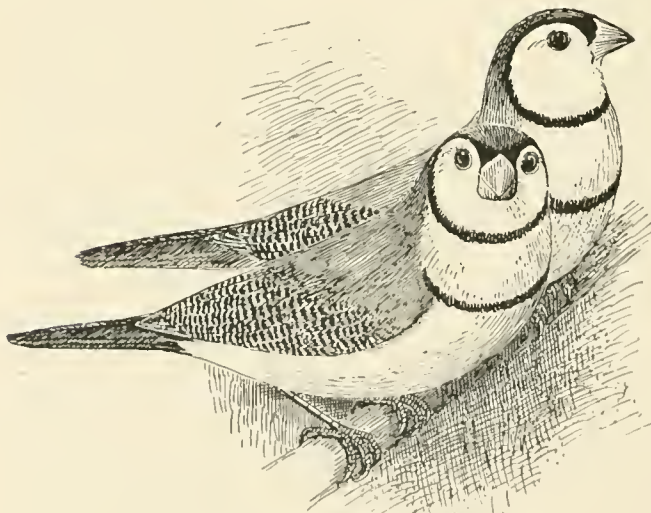
This remarkable hybrid was bred by Mr. R. Ellis, of London, apparently about the year 1888, since the coloured sketch of it was made for Mr. Abrahams in December of that year. Other examples of the same hybrid have been bred by various aviculturists and exhibited at the Crystal Palace and elsewhere, so that I have had an opportunity of proving that my sketch, although made under adverse conditions, was tolerably accurate.

BICHENO'S FINCH (*Stictoptera bichenovii*).

The male above is pale brown, the feathers with slightly darker bars, rump crossed by a black belt; upper tail-coverts white, tail black, greater wing-coverts and flights blackish, spotted with white; forehead blackish, continuous with a black line which borders the sides of the crown and back of face, continuing across the lower part of the throat; cheeks and throat white, remainder of under surface buffish white, a second black stripe crossing the breast; chest slightly greyish, especially at the sides, which are faintly barred; under tail-coverts black; beak and feet bluish grey; iris black.

The female is a little smaller, more slim, duller in colour, paler on the crown, and has slightly narrower black bars across throat and chest.

Bicheno's Finch inhabits the interior, the northern and the eastern portions of Australia. It is naturally tame and confiding, and as it spends much of its time



BICHENO'S FINCHES.

on the earth feeding on grass-seeds, it is easily captured. Nevertheless, it is never seen in large flocks, and often only in pairs, so that it is comparatively a rare species. It builds a nest of grass either in a bush or in long grass, and lays five white eggs.

In captivity it is quite willing to breed, and for its delicacy might soon be multiplied. I bought a pair in 1894, but they only lived a month or two, and as they were then very expensive I hesitated to replace them. In 1899 Mr. Abrahams sent me a cock bird in order that I might try to breed the Hybrid previously described and figured. I put up the supposed cock with a hen Zebra Finch, but without result, though I kept the pair in a flight-cage. I therefore wrote and told Mr. Abrahams that I thought he must have sent me a hen bird, as the two simply ignored one another. He then sent me another, which he said he was confident was a cock; so I turned the first bird into a good-sized aviary in which there were Zebra Finches of both sexes. In neither case were any hybrids bred, but the bird in the aviary lived for three or four years.

In 1905 a large consignment of Australian Finches was brought to London by Mr. Payne, and I purchased a pair of Bichenov's Finches, among other things, but they did not live many months. I consider these birds to be among the most beautiful of all the ornamental Finches, which makes their frailty all the more distressing to bird lovers.

Bichenov's Finches require a certain amount of insect food, living ants' cocoons being the best thing for them; but freshly killed flies or small spiders would suit them well.

I never heard my birds sing. A Mr. Bargheer likens the song to the cackle of a little hen, and Dr. Russ says it is a slight whispering, with single, clear-sounding cries. The call-note I have often heard; it is a toy-trumpet sound like that of a Zebra Finch, to which, undoubtedly, this species must be allied. This species was bred by Mr. Glasscoe (*Avic. Mag.*, 1st Ser., Vol. VI., p. 35), and subsequently by Messrs. Hawkins, Phillips, Seth-Smith and others.

RINGED FINCH (*Stictoptera annulosa*).

Differs from the preceding species in having the rump black instead of white; beak and feet leaden grey; irides red-brown; the female has the black breast band narrower than in the male. Habitat, Northern and North-Western Australia.

According to Mr. North, this is the western representative of the eastern *S. bichenovii*. Respecting its nidification Mr. Kearland says: "This pretty Finch was only seen near the Fitzroy River, where it was breeding during February and March. By a close observation of the material used it is possible to determine to which species of Finch the nest belongs. The Ringed Finch usually chooses a site in some drooping branch about ten feet from the ground. In the case of those examined, the outer covering was invariably very coarse—dead grass loosely woven together—but the lining was of the finest silver grass, and a marvel of neatness. Six eggs form the usual clutch. Although some were perfectly white, one clutch from which I caught the bird had a faint bluish tinge, similar to those of the Chestnut-eared Finch." This "faint bluish tinge" is, I am satisfied, simply due to the eggs being thin-shelled or insufficiently coated with lime. In the case of Chestnut-eared (Zebra) Finches bred in captivity, where plenty of cuttle-fish is always at hand it is quite the exception for the eggs to have any tinge of bluish in them.

Mrs. Howard Williams was the first to breed this

pretty little bird in captivity (*Avic. Mag.*, 1st Ser., Vol. VIII., p. 239; a full account also pp. 264-266). She observes: "It is interesting to notice the difference between them and the ordinary Bichenov's Finch, which has bred with us several times. We think they leave the nest about the same time, at three weeks old, but whereas the Ringed Finch emerges ringless, his relative has both rings quite as clearly marked on leaving the nest as the Ringed Finches have now at nine weeks old."

I purchased a pair of this species on February 22, 1906. The male died on September 4, but the female on May 29, 1907. No attempt was made at breeding.

CHERRY FINCH (*Aidemosyne modesta*).

The male is brown above, the rump barred with white; upper tail coverts darker, white spotted; tail blackish, outer feathers with terminal white spot; wings brown, flights dusky with pale outer edges, inner secondaries with white terminal spots; crown dark brown, dull crimson in front; feathers above and behind eye as well as sides of face white; ear coverts white with brown bars; a small black gorget; under surface white; neck and flanks barred with brown; beak black; feet flesh-coloured; iris, chestnut. Female much less crimson on the forehead, with no black gorget, and more uniformly grey below. Habitat, Wide Bay district to New South Wales, Victoria, and South Australia.

In its wild state this bird builds its nest in a low bush or long grass—it is a domed structure composed of dry grass and thickly lined with feathers; five white eggs are deposited. In captivity it prefers a bush in which to build; the nest is rapidly formed, and the eggs laid are very large for the size of the bird; the female, however, is extremely nervous, and leaves her eggs on the slightest alarm, so that I was not successful in even hatching young, but in 1895 Mr. J. Cronkshaw reared one bird.

In February, 1897, I lost my last pair of Cherry Finches, the hen having utterly vanished on the 19th, whilst the cock died the following day; whether they were scared to death by mice, and the female died in a corner where it was never discovered, I cannot say; its disappearance puzzled me a good deal.

As the Cherry Finch (also known as Plum-headed Finch and Modest Grass Finch) is one of the least delicate of Australian birds, I have not the least doubt that it could be successfully kept and bred in an open-air aviary if planted with shrubs and sheltered from northern and easterly winds.

INDIAN SILVER-BILL (*Aidemosyne malabarica*).

The male is light rufous-brown, the head slightly darker and mottled; the rump and upper tail-coverts white, the former barred with brown at the back, the latter with the edges of the feathers externally black; tail black, outer webs of feathers partly ferruginous, inner secondaries brown, with narrow white terminal fringes; remaining flights black; sides of face and under surface white, the latter slightly tinted with buff and with darker bars on the flanks; beak grey, feet greyish flesh-coloured; iris dark brown.

The female is smaller and less buffish in tint than the male.

Habitat, Ceylon and Indian Peninsula, Kelat, and Afghanistan.

Being one of the best known and most familiar of the Indian Finches, its wild habits have been frequently observed and described. It is usually seen in small communities, both in wild and cultivated country. When breeding, which is nearly all through the year, it

either occupies a deserted Weaver-bird's nest or builds a nest of grass, two pairs sometimes uniting to construct and occupy a single nest, which is usually placed in a low bush. In form the structure is quite normal, domed, and with short depressed entrance passage in front, but occasionally it is said to be a mere over-arched platform, open in front. It is almost always softly lined, usually with flowering grass and feathers, but Mr. Aitken states that he has seen countless nests, and there is no lining; his experience, therefore, seems to differ from that of all other observers. From four to eight white eggs are deposited, but as many as fifteen have been found in one nest (probably the product of two hens).

In May, 1895, Mr. Abrahams sent me a pair of this species, in order that I might cross them with Striated Finches, with a view to the reproduction of Bengalees. In this I was unsuccessful, owing to the delicacy of the Silver-bills, which did not seem to thrive in even a large flight: so that, with the hope of saving their lives, I turned them loose in a spacious aviary. Both birds died within a few months, having made no attempt whatever at breeding. Had I succeeded, it is probable that the hybrids would not have nearly resembled the Bengalee: indeed the experiments made by Messrs. Perreau and Teschemaker tend to prove that the Bengalee was derived from the Striated Finch with a subsequent cross with the nearly related Sharp-tailed Finch.

The song of the Indian Silver-bill is said to be somewhat harsher than that of the African species, but I never heard it. In all other respects its habits in captivity agree with those of the more freely imported species. It has been bred in Germany, and Mr. Teschemaker bred it in Devonshire in 1895.

Although an extremely common Indian and Ceylonese bird, this Silver-bill is much rarer and consequently dearer in the bird market than its African cousin. One reason for this may be that it has nothing like the constitution of *A. cantans*, and is far more sensitive to changes of temperature.

AFRICAN SILVER-BILL (*Aidemosyne cantans*).

Its upper surface is of a greyish wood-brown tint, rather darker on the head, which is also slightly more golden in hue; all the feathers have a slightly paler outer border; the flight-feathers and tail are blackish-brown, the tail is rather long and pointed, and the bird has a habit of jerking it sideways, somewhat after the manner of a Waxbill, though less rapidly; the under parts are pale sandy-buff, the feathers having a whiter outer border, the centre of the belly and the under tail-coverts white; the bill blue-grey, the feet greyish. Female rather smaller than male, more slender, and with the outer flight-feathers greyer. Habitat, Southern Arabia, North-Eastern Africa, and southwards to Zanzibar and Western Africa.

Like most of the Ploceine Finches, it frequents the banks of streams and cultivated lands. It is said generally to utilise the nests of Weaver-birds for breeding purposes, lining them thickly with feathers, wool, and hair, and to lay from three to five white eggs. It is more frequently seen in hedges or scrub than on the ground. The nesting season is stated to be from August to October, but it is probable that it extends over a considerable portion of the year, as the nest has been found in January. In captivity this Silver-bill prefers the cigar-box receptacle to all others for nesting in. It seems to be always ready to build, and will sometimes lay and sit; but, as a rule, the hens succumb to egg-binding. It has been successfully bred in Germany, the young being reared entirely on regurgitated seed.

All other food is said to be entirely ignored by the parents. Mr. Farrar bred it in England in 1896, but whether he was the first successful breeder in this country I cannot say; with so common a species I should think it highly improbable.

I have had a great many examples of this modestly coloured little bird, and my first male never sang, only uttering a shrill trill like that of our Lesser Redpoll. I find, however, that most males sing a pretty, soft, little rippling song, which Dr. Russ rather aptly describes as "resembling a little running brook."

This and the Indian Silver-bill have been crossed successfully. The African bird is very hardy, and the males live for many years without special attention.

RIBBON FINCH (*Amadina fasciata*)

Upper surface dull golden brown, the outer borders of the feathers brighter and marked with little black bars; the head rather greyer than the back, and the tail quite grey; the wing coverts greyish, with bright golden brown borders to the feathers, and a short black bar on the outer webs; flight-feathers grey, with paler margins; the throat of the cock is white, crossed by a semi-circular broad band of vivid crimson; the breast and abdomen pale golden or chestnut brown, with greyish or blackish bars near the outer fringes of the feathers, and a few white feathers here and there, but chiefly in the centre of the abdomen; beak and legs flesh tinted. The hen differs from the cock in its black-speckled brown cheeks and paler brownish throat, the beautiful crimson band being entirely absent. Habitat, Senegambia to North-East Africa, and northwards to Masailand. In North-East Africa the habits of the Ribbon Finch closely resemble those of the common house Sparrow of Europe: they collect together in crowds, chirp, dust themselves in the sand, and possibly nest in holes, as they do in captivity; or they may build social nests like the Red-headed Finch. Antinori found them breeding in August and September in great companies, which certainly gives colour to the latter supposition.

The name of Cut-throat, which has been applied to this bird, is not belied by its disposition, which is naturally aggressive towards smaller and weaker birds, but cowardly towards birds of equal or superior strength. I, therefore, do not recommend the Ribbon Finch as a safe companion for a mixed community of ornamental Finches (*Prachtfinken*), but a pair in a flight-cage make delightful pets.

Of all species the Ribbon Finch is one of the easiest to breed; but, either because it objects to odd numbers or refuses to let dead nestlings remain in the nest to poison the others, it has been credited with the unnatural crime of throwing its young out of the nest to die. I found that only the odd birds were thus disposed of, so that only pairs of young ones left the nest; but my experience is not universal, for odd birds certainly are sometimes reared.

The Ribbon Finch is extremely fond of its young, more so than most birds; I know of no other species which is so frantic with rage and grief when the young (being old enough to provide for themselves) are removed; whilst the nestlings themselves are almost equally distressed; it therefore seems highly improbable that such affectionate parents would wantonly destroy their infants. My young Ribbon Finches were reared entirely upon insectivorous food, which I supplied daily in a small pot. I find this food usually sufficient for any of the small Finches when breeding, though I sometimes give a piece of Madeira cake or sponge cake for a change.

Cage-bred Ribbon Finches become wonderfully tame, and not only feed from the fingers, but sing for their

owners whenever they approach; the song is a low, effervescent, bubbling sort of production, but not unpleasant.

Of late years I have been singularly unlucky in my attempts to breed this species, the hens dying from egg-binding in almost every instance, although supplied with plenty of lime, and the cocks soon after, from no perceptible cause.

Amadina marginalis of Sharpe was based upon two skins said to be from West Africa, one of them apparently having been a cage-bird. They are said to be more rufous in colouring than the common Ribbon Finch, with a deeper band on the throat, and the feathers of breast and flanks edged, not subterminally barred, with black. Two more skins have been added; but all four are simply recorded as coming from West Africa.

Dr. Reichenow considers this to be a variety of *A.*

Southern Africa southward from Angola and Matabeleland.

In October, in its native country, this bird congregates in large flocks near the rivers; it breeds about May or June, usually building its nest of small sticks, fine roots, etc., and lining them with wool, feathers, or other soft materials.

In Layard's "Birds of South Africa" we read that Mr. Ortlepp came upon large flocks of this species. At Priel "he found a colony in a large 'wait-a-bit' thorn; a cartload of grass stuck in a fork, with two or three dozen apertures bored in below."

In confinement the Red-headed Finch breeds after the manner of the Ribbon Finch, with which, according to Dr. Russ, it will not only cross, but produce fertile hybrids; the latter product, if not identical with *Amadina marginalis*, must surely closely resemble it.

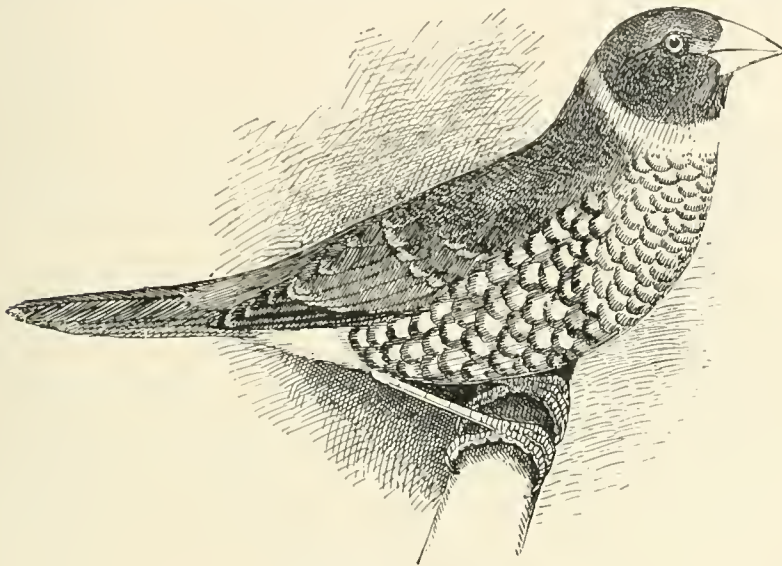
In 1898 Lieut. E. D. H. Daly bred this hybrid after losing a hen Red-headed Finch and four hen Ribbon Finches from egg-binding.

On April 15th, 1905, I bought a pair of Red-headed Finches for 25s., in the hope of breeding the species, but the hen died egg-bound on the 25th of the same month. I then purchased two hen Ribbon-finches, which I turned in with the widower. He took up with one of them, but drove the other away whenever it approached him. In 1906 Mr. W. E. Teschemaker sent me a young male Red-headed Finch which he had bred, and I paired up my odd hen Ribbon-finch with it, keeping them in a good-sized flight-cage. Towards the end of the year the hen died egg-bound. On November 27th Lieut. Horsburgh sent me two cock Red-headed Finches, and Mr. Silver

kindly purchased for me, at my request, two hen Ribbon-finches. I turned one into an aviary with one of the new cocks, and the other into the flight-cage with Mr. Teschemaker's present, taking away the nest-box to prevent their attempting to breed during the winter. In 1907 I turned the latter pair into my larger garden aviary, but no attempt at breeding was made that year. In April, 1908, as only one hen remained alive, I purchased three more and paired them up with the three widowed cocks.

Mr. Erskine Allon had the same trouble as other aviculturists with the hens of Red-headed and Ribbon Finches; they all died egg-bound.

Some years since Mr. Abrahams informed me that he had seen a hybrid between the Ribbon Finch and Java Sparrow; so, having a very tame home-bred cock Ribbon Finch, I paired it up with a home-bred hen Java Sparrow, and kept them together in a flight-cage for over two years. Numbers of eggs were produced, but not one hatched, and I am convinced that the larger Red-headed Finch must have been the parent of the hybrid seen by Mr. Abrahams. The disparity in size between the other two species is too great to render a successful fertilisation likely, though it may



RED-HEADED FINCH.

fasciata, but Capt. Shelley observes "that may be the case if all the four known specimens were cage-birds." Two are admitted to be cage-birds; of the others one was presented by Mr. J. Pulham (and to me looks very like a cage-bird), the other was from Sir Andrew Smith's collection.

To me it has always seemed far more probable that *A. marginalis* is a hybrid between *A. fasciata* and *A. erythrocephala* than that it is a variety of the former. Hybrids between the two have been bred both in Germany and England, but I have seen none of them, and hitherto my efforts to produce them in cage and aviary have all been foiled by the death of the hen Ribbon Finches from egg-binding.

RED-HEADED FINCH (*Amadina erythrocephala*).

The upper side of the male is brown, below greyer, with a ruddy tinge and dark-brown bars, giving it a scaled appearance; head crimson; upper tail-coverts barred with brown; tail brown, the feathers, excepting the outer ones, white tipped, the two outer ones with white external margins. The female similar, but without the crimson head and with greyer under parts. Beak horn-coloured; feet flesh-coloured; iris hazel. Hab.,

be possible, as in the case of Bullfinch and Redpoll hybrids.

It is difficult to say whether the species of *Amadina* ought to be called Grass-finches or Mannikins; they certainly approach near to the Spice-finches.

The Mannikins.

These birds are merely sombre-coloured Grass-finches with slightly heavier beaks, the culmen (or ridge) of which is in a line continuous with the fore-

QUAIL FINCH (*Ortygospiza polyzona*).

Above brown, slightly mottled with darker brown; forehead blackish; wings and tail brown; coverts and secondaries edged with grey; outer primary and outer tail-feather edged with white; second tail-feather with a white streak; lores blackish, a broad white orbital ring consisting of the eyebrow and a streak joining it below the eye; ear-coverts and sides of neck greyish brown; cheeks blackish, united by a widening blackish streak to the black throat; a large, sharply-defined,



QUAIL FINCH.

head. They are the most stupid and generally apathetic of all Finches. With the exception of the Java Sparrow, which I consider more nearly related to the typical Weavers than any other Mannikin, they can hardly be expected to sing, the sounds they utter being weak and frequently almost inaudible; indeed, some aviculturists have declared themselves quite unable to detect the slightest sound, although I must confess that I always regarded this as a slight exaggeration of the fact. The song of the Chestnut-breast is the loudest of all these feeble singers, and even his performance only consists of four feeble notes, each repeated from four to six times. I will, however, give the Mannikins credit for one thing: if they cannot sing, it is not for the want of trying; their efforts to express themselves are prodigious and the effect ludicrous.

white chin-spot; upper breast grey, barred with black and white, passing into light chestnut on the lower breast and into buff on the abdomen; sides and flanks greyish brown, barred with black and white; lower tail-coverts buff, with longitudinal black shaft-streaks; axillaries and under wing-coverts buff; flights below dusky, with pale inner margins; beak red; feet pale brown; irides bright hazel. Female with the black on head and throat replaced by greyish brown; under-surface of body paler; breast and sides barred with dull brown and white. Habitat, from Abyssinia to Eastern Cape Colony on the east coast, and on the west from Senegal to Angola.

Stark observes ("Birds of South Africa," Vol. I., p. 110): "These pretty little birds are usually met with in small flocks, but occasionally in single pairs, on open grassy flats. Here they feed on the ground, under

the grass, on the fallen seeds. If disturbed they rise suddenly, with a curious metallic 'chirp,' fly a short distance, and settle again directly on the ground without first perching on bushes or weeds. As a rule, their flight is rapid and direct, but they sometimes rise with their usual sharp cry and fall again on the spot from which they rose." Mr. T. Ayres gives the following account of the nest found near Pöschelstroom on the 30th of April, in *The Ibis* for 1878, p. 297: "This pretty little fellow I shot as he rose from the nest, where he had evidently been doing duty for his wife, by sitting on the eggs in her absence. The nest was a very rough structure, placed on the ground amongst the grass and not easily seen, from its being composed of dead blades of grass; it was lined with a few coarse feathers, and in shape was much like the nests of some of the Sunbirds, with a projecting cave over the entrance, but all very rough. The eggs were five in number and pure white; length, 0.54; breadth, 0.47. Eggs in the South African Museum at Cape Town are rounded ovates, without gloss and pure white. They average 0.62 by 0.48."

Shelley calls this bird "Temminck's Bar-breasted Mannikin," and I suppose it is a Mannikin in spite of its red beak, but the question as to whether it is, or whether it should be called a Grassfinch, is of little importance.

Mr. Seth-Smith published a short illustrated notice of this rare Finch in *The Avicultural Magazine*, N.S., Vol. IV., pp. 170-172. The London Zoological Society received two pairs in 1906, and Messrs. Hawkins and O'Reilly acquired specimens in 1907.

SHARP-TAILED FINCH (*Uroloncha acuticauda*).

The Sharp-tailed Finch is reddish brown, with pale shafts to the feathers, the crown and upper back, face and throat darker; feathers of the rump and upper tail-coverts, sides of neck and breast with pale margins; a white belt barred with grey across the lower back; the chest and abdomen sordid sandy whitish streaked with grey; wings dark brown; tail black; beak, feet, and iris as in *U. striata*.

The sexes differ chiefly in form of beak, as in the allied species.

Common in the Himalayas, Burma, Malacca, and Sumatra.

This species is gregarious, occurring in large flocks which feed chiefly upon the ground, but are also very destructive in the rice fields. It breeds certainly from June to December, building a rather compact spherical nest of grasses and leaves, the lining being formed of the finer stems with seed panicles attached, some of which protrude through the opening and form a depressed entrance passage. The nest is placed from six to twenty feet above the ground in scrub or small trees. Five to six white eggs are deposited. Its song is not much unlike that of the Bengalee.

In captivity this species is hardy, long-lived, and seems always willing to breed; but, unless crossed with the Bengalee, the eggs seem to be rarely hatched. It appears to be a somewhat nervous bird, therefore (unless the nest is well concealed from observation) is probably always a bad sitter, starting from its duties at the slightest alarm. As with all the Mannikins, millet, canary, and oats are the only seeds it requires to keep it healthy.

Some years ago I bred crosses between this species and the domesticated Bengalee, and they closely resembled the wild bird, excepting for a white feather or two in wings or tail; but the variety used was the fawn and white Bengalee, which is most like *U. acuticauda*, and was, I now believe, originated by crossing the latter with the modified descendants of *U. striata*.

It is nearly related to the Striated Finch, with which it was for many years confounded in the bird market; but Dr. Russ's notion that it could hardly be considered a distinct species makes one wonder whether he ever possessed both birds, inasmuch as the most superficial glance reveals abundant difference.

STRIATED FINCH (*Uroloncha striata*).

Of a smoky bronze-brown colour, becoming almost black on the crown, tail, and breast. The feathers on the back and the wing-coverts have pale shafts (a character also found in the Bengalee); there is a white belt across the lower back; the hind chest and abdomen are buffish white, some of the feathers showing a dusky edging to the fringe. The beak is leaden grey, the upper mandible darker than the lower; the feet paler leaden grey; the iris reddish brown. Hab., Central and Southern India and Ceylon.

This is one of the familiar Finches of India, where it appears to breed nearly the whole year round. Though fond of inhabited and cultivated districts, it is said to be shy of approaching houses, and builds its nest in a bush, a creeper, or a small tree. In form both nest and eggs are characteristic of the group to which it belongs, the form of the nest being either spherical or oval, with the entrance in front towards the top. It is chiefly constructed of grass, the coarser blades being used for the outside and the finer for the lining. From four to eight white eggs are deposited.

Common as this bird is, it is not always to be seen in the bird market. I purchased two examples in 1892, since which time I have never seen another, although I have once or twice heard of specimens for sale. The species seems vigorous enough, but one of my specimens died April 10th, 1898, the other being healthy for a year or two later. There is nothing especially interesting about this Mannikin; but the same may be said of nearly the whole group. It has been bred in Germany and England.

I have not the least doubt that the dark brown and white form of the Bengalee was derived direct from this species; its colouring and the barred band across the back of the breast indicating the completion of the dark brown on the chest of *U. striata*, as well as the fact that this form of Bengalee sometimes has a dark brown tail and always a well-defined indication of the white belt across the lower back, all tend to confirm the truth of this conclusion, whereas there is nothing but its slightly superior size, the two white spots on the forehead, and the grey bars on the white dorsal belt to distinguish it.

In 1906 Mr. Teschemaker bred crosses between *U. striata* and the Bengalee, of which he sent me a pair on 23rd October. They were extraordinarily like *U. acuticauda*, from which fact Captain Perreau subsequently concluded that the Bengalee must have been derived from the latter species, and not from *U. striata*, though he thought the latter might have played some part in its derivation; practically this decision is simply my own reversed—I concluding that *U. striata* produce the Bengalee and *U. acuticauda* differentiated it into three forms.

In 1907 Mr. Teschemaker wrote to *The Avicultural Magazine*, N.S., Vol. V., p. 251:—"Perhaps it may be of interest to mention that two of my Bengalee Striateds . . . which Dr. Butler rightly describes as closely resembling adult Sharp-tailed Finches have this year paired and produced three young."

"One of these exactly resembled the parents, but the other two were a typical dark brown and white and a typical fawn Bengalee."

I consider this fact conclusively proves my view of

the case, since there is an attempt at reversion to two types of parent, and it is inconceivable that *U. acuticauda* could produce a type so closely resembling the much darker *U. striata*; but quite conceivable, if the latter were originally a mere variation from *U. striata* and the fawn and white variations were produced by introducing a nearly related species, that the hybrid, paired with the original parent stock, should show the influence of both that and the later introduction in its offspring.

BENGALÉE (*Uroloncha domestica*).

The technical name has been proposed by Captain Stanley Flower for this domesticated Guinea-pig among Finches. It is well-known in all its forms, dark sepia-brown and white; fawn or tawny-buffish and white, and pure white. I have bred all three forms several times, but not in great numbers. I gave up Mr. Abrahams' view that the Indian Silverbill was concerned in the parentage of this little bird on the ground that it never showed any tendency to revert to that species, whereas it certainly does to both *U. striata* and *U. acuticauda*.

The song of the Bengalée is a little louder than that of the Striated Finch, and perhaps somewhat more liquid; but it has no great merit.

Strictly-speaking the Bengalée is a genuine fancier's bird, and therefore should have no place in the present work, but both this and the Barbary Turtle-dove have always been included in avicultural books, and therefore it would be pedantic to omit them.

COMMON SPICE-FINCH (*Munia punctulata*).

The prevailing colour of this Mannikin is chocolate-brown, the under parts becoming paler from before backwards, being quite white on the belly, but all the feathers edged with brown, which produces a regularly scaled appearance; rump similar to the belly in colouring; the beak and feet are grey, upper mandible black. Female differing in form of beak as in *Uroloncha*. Hab., the greater part of India and Ceylon.

Being an exceedingly abundant species, the wild life of the Spice Finch has been well observed. It breeds from February to October, building usually in small trees or bushes, acacias by preference, or in trellises of houses. As a rule, the nests are at a height of five to seven feet from the ground, but exceptionally at a much greater elevation. The typical form of the structure is an oblate spheroid eight to ten inches in diameter and six to seven inches high. It is formed of fresh broad-leaved grasses, rice and barley straw, and sometimes leaves, with a circular opening in front. The lining consists of fine dry grass stems, the beards of wheat and barley, or fine rootlets. Five to ten white eggs are laid, but seven appears to represent a normal clutch.

This bird seems to be by no means easy to breed, although Dr. Russ has succeeded where others have failed. My birds have from time to time laid eggs and have sat for a week or so; but, either from weariness or through being disturbed by other Mannikins, have never persevered long enough to hatch out any youngsters.

The fights of this and all the Mannikins are a miserable make-believe; they simply stand up as high as possible and rap their beaks together, without hurting one another in the least. The only time when they are dangerous is when they have a nest in a German canary cage and some little fellow attempts to intrude; then they scuttle to the opening, lean over, and if the inquisitive stranger does not look out they will bring their great beaks down like a pick on the top of his skull, and drop him dead in a single blow. This is, however, a tragedy of rare occurrence, though

I once lost a nice little African Waxbill thus through a blow from the beak of a Black-headed Mannikin.

The song of the Spice Finch is a feeble vibrant humming, followed by three creaky utterances, which I once described as resembling an arrested sneeze, and it invariably terminates with a very thin prolonged whistle. To persons at all dull of bearing the song is quite inaudible.

BAR-BREASTED FINCH (*Munia subundulata*).

Differs from *M. punctulata* "in the more olive-yellow shade of the rump, upper tail-coverts and tail, and the generally more ashy black of the flank barring, which, moreover, is not so strongly pronounced as in *M. punctulata*. On the rump the leathers have not the second subterminal dusky bar which is seen in the latter species." Hab., from Cachar to Manipur, Burmah, and Tenasserim, eastward to Cochin China." (Sharpe.)

Dr. Sharpe regards this as a sub-species tending to link *M. punctulata* to the Malayan *M. nisoria*. There is not the slightest doubt in my mind that the late Mr. J. Abrahams failed to distinguish it from *M. nisoria*, for he recognised some of my specimens received from India as the Bar-breasted Finch. I suspect that all those which he presented to the London Zoological Gardens were actually examples of *M. subundulata*. Mr. Abrahams called the Indian examples *M. nisoria*.

TOPELA FINCH (*Munia topela*).

Differs from *M. punctulata* in having "a shade of ashy-olive over the rump, and with the upper tail-coverts and tail shaded with pale straw-yellow; the chestnut throat more restricted than in the Indian species, and the barring on the flanks more dusky blackish." Hab., Southern China, Formosa, and Hainan." (Sharpe.)

Mr. Abrahams gave me a pair of this form of Spice-bird in July, 1894. I have no doubt that, like the other imported forms, it is a mere local race of *M. punctulata*. In voice, behaviour, and nesting habits they all agree, and the confusion that has arisen respecting them is evidence of the difficulty of distinguishing them.

MALAYAN SPICE-BIRD (*Munia nisoria*).

Differs from *M. punctulata* in having "a grey shade over the rump and tail, with scarcely any olive-yellow; the rump feathers are like those of *M. topela*, plain, with a pale edging, but with indications of two dusky bars." "I am not sure that these light edges are not signs of age." Hab., Malayan Peninsula, Java." (Sharpe.)

It is probable that some of those recorded in the Zoological Society's list are genuine *M. nisoria* (but not Bar-breasted Finches), whereas those which Mr. Abrahams identified in my aviaries with "*M. nisoria*—the Bar-breasted Finch," were *M. subundulata*, the actual Bar-breasted Finch. Blyth and Jordan made confusion worse confounded by calling the common Spice-bird of India *M. undulata*, and the Malayan bird *M. punctulata*.

PECTORAL FINCH (*Munia pectoralis*).

Above pearl grey; upper tail-coverts blackish; wing-coverts and inner secondaries pale greyish brown, spotted at the extremities with white; flights dusky, pale brown externally; tail blackish brown; a narrow buffish line from base of forehead over eye and down the sides of the neck; sides of head and throat black, extending to fore-neck, where the feathers are white-tipped; breast crossed by a broad white belt, with here and there an isolated black bar; abdomen and under tail-

coverts vinous-grey; sides of body varied with white bars, edged on each side with black; under tail-coverts dusky, the longer ones broadly tipped with pale vinaceous, following a subterminal white line; under wing-coverts and inner edges of flights vinaceous; beak pale bluish grey; feet flesh-coloured; irides dark brown. Female with the white breast regularly barred with black. Hab., "North-West Australia, Northern Territory, and North Queensland." (Campbell.)

Beyond the fact that the Calvert expedition saw this species feeding amongst long grass or flying from tree to tree, nothing appears to have been recorded of the life of this bird previous to 1897. At the end of February of that year the nest was obtained by Mr. G. A. Keartland. It was of the usual flask-like shape, constructed of grass lined with finer material, and placed in a bush, about ten feet from the ground. Campbell tells us ("Nests and Eggs of Australian Birds," p. 1080): "The eggs are long ovals in shape; texture fine; surface without gloss; colour, white, with the faintest bluish tinge. A pair from a clutch of four, taken by Mr. G. A. Keartland, in North-West Australia, measure in inches (1) .62 by .43, (2) .6 by .42."

This species, which had always been regarded as an extreme rarity, first appeared as a cage-bird in May, 1896, when a single specimen was exhibited at a show at Brighton, and from that date they arrived each year in increasing numbers.

I purchased my first two pairs of Pectoral Finches in May and June, 1905, and turned them into my smaller garden aviary, where they did not themselves build, but took possession of nests built by my Rufous-tailed Grassfinches, as mere places to squat in. Before the end of the year one pair had mysteriously disappeared, and I never even found the remains. I can only conjecture that they escaped through a knot-hole, but if so, it must have been a tight squeeze. On March 20th, 1906, I received, among other birds, as a present from some unknown friend, three Pectoral Finches—a perfect pair, and a blind hen, which I subsequently gave away. I put my old pair into one of my bird-room aviaries, and the new pair into a smaller indoor aviary; neither pair attempted to breed.

In 1907 I turned one pair into my larger garden aviary, where again they never attempted to breed, but during December both disappeared. Of the pair left indoors one example also disappeared during the year, so that of the seven examples which I have had of this pretty Mannikin, only one was left me at the end of 1907, and I had secured not a single skin for my collection. In 1905 the Pectoral Finch was bred by Mrs. Howard Williams.

CHESTNUT-BREADED FINCH (*Munia castaneithorax*).

The upper part of the head and nape are pale ashy brown with darker streaks, the remainder of the upper surface cinnamon-brown; the rump and upper tail-coverts glossy straw-coloured, as are the central tail feathers, but the remainder are dark brown with yellowish edges; the sides of the face are blackish with pale shaft-streaks; chin and throat blackish; sides and front of neck and chest pale chestnut, bounded behind by a black girdle; breast and abdomen white, the sides cinnamon barred with black and white; vent, under tail-coverts and tail below black; beak pale blue-grey; feet greyish brown; iris brown.

The female has a slightly more finely formed beak, has a rather paler chestnut belt on the breast, with the black girdle a little narrower and the black markings on the sides less defined, as also is the streaking of the crown; but the differences are not very obvious

until the birds are taken one in each hand and compared side by side. Habitat, Northern Territory of Australia, Queensland, and New South Wales.

The Chestnut-breast breeds in extensive grass and reed beds, bordering the banks of lagoons and rivers; its nest is large and flask-shaped, the neck of the flask (which is in front), represented by the entrance passage; it is placed near the top of a bushy shrub or in tangle, and is formed of grasses and leaves of reeds, intermixed with fine stems of gardenia or lobelia; the lining consists of the feathery tops of reeds, flags, and sometimes a few feathers. Four to five white eggs are deposited.

Although this Mannikin is always ready to sing and dance to its hen, and even interrupts the breeding of other species by carrying hay into their nests, I have never been successful in getting it seriously to take up housekeeping. Its song is a little louder than that



HYBRID GRASSFINCH.

of others of the more typical Mannikins—"Whit, whit, whit, whit; wee-wee-wee-wee-wee-wee-wee-wee,—tweco, tweco-ur."

This Mannikin formerly fetched rather a high price; but of late years it has become somewhat more reasonable. I have at various times had nine examples, and have found the species quite hardy and fairly long-lived when once acclimatised.

Mr. Abrahams sent me some years ago a very rough coloured sketch, with description, of a hybrid Finch bred by Mr. Herbert Bagnall, of Cheltenham. Mr. Bagnall writes:—"The accompanying rough sketch is of a hybrid between a cock Chestnut Finch and hen Indian Silver-bill. It was bred in my aviary last summer, the nest being made in a cigar-box. Until about two months ago the bird was chiefly of a dark brown hue, with a brown tail; it has now become very beautiful, as most of the body is finely pencilled with brown stripes, and the tail has become reddish orange, and very pointed. The bird is very slim, and its note is that of the Silver-bill; it warbles continually. A second bird was reared with it, but unfortunately died when about six months old." Rough as Mr. Bagnall's

sketch is, it shows very clearly the parentage of the bird, the crown of the head and chin, the flank markings, and tail being most like the Chestnut-breasted Finch; but the size, outline, and colouring of the wings and back resemble those of the Indian Silver-bill. The form of the tail appears to correspond with that of the African Silver-bill. With the help of my preserved skins and the rough sketch I think I produced a fair portrait of the bird, the faults in the sketch being those of form and structural detail. This hybrid between Australian and Indian Grassfinches (or, more strictly speaking, Mannikins) is very interesting, much more so than the everlasting Canary Mules which one always meets with at bird shows, and is well worth an illustration.

YELLOW-RUMPED MANNIKIN (*Munia flaviprymna*).

Back and wings chestnut-brown; rump and upper tail-coverts bright ochraceous; tail-feathers brown edged with straw-colour; head all round ashy whitish, rather whiter on the throat; under surface of body creamy buff, the breast washed with tawny; thighs at back brown flecked with white; under tail-coverts black; under wing-coverts and margins of flights buffish; beak pale bluish ash, lower mandible almost white; feet pearl grey, more fleshy at proximal extremity; irides dark brown. Female slightly slimmer than male, its beak a trifle narrower; head somewhat greyer, breast more tinted with tawny. Hab., Northern Territory of Australia; North-Western Australia, inland from Cossack.

Little has been published respecting the wild life of this bird; though it would appear from what Elsie says that it builds in tea-trees overhanging water and forms the usual type of nest of bark and *Pandanus*. Up to 1904 this was one of the rarest birds in collections, the only skin known in Europe being one obtained by Mr. J. R. Elsie in 1856, in the British Museum collection.

In 1904 a few specimens were trapped, a pair of which found their way to the Melbourne Zoological Gardens, and one specimen was sent to England by Mr. H. E. Peir to compete at various bird-shows. When first shown the judge imagined it to be a hybrid and awarded it only a second prize; but at the Grand National, in January, 1905, it took first and special prizes. Since that date *M. flaviprymna* has been imported in increasing numbers, Messrs. Payne and Wallace having introduced considerable numbers into the market, so that early in 1906 I purchased three pairs, and shortly afterwards had two pairs sent to me by an unknown friend.

Mr. Seth-Smith gave an illustrated account of the species in 1905 (*The Avicultural Magazine*, N.S., Vol. III., pp. 215-217). He rightly states that the call-note resembles that of the Chestnut-breasted Finch; but I do not admit the identity of the songs of the two birds; that of *M. flaviprymna* consists of four notes, each repeated from four to six times as follows:—



The Chestnut-breast has a far more monotonous song, but with two double notes at the finish which I rendered as *twoo, twee-ur*. As I had five cocks and four hens of that species and have had (and still have as I write) several cocks of the Yellow-rumped Finch, I am certain that if the songs are ever alike they are certainly not so as a rule.

In 1906 Mr. W. E. Teschemaker successfully bred the

species, and in *The Avicultural Magazine* for February, 1907, he gives a full account of his experiences, and calls attention to the fact that certain specimens after importation tend to assume the colouring of the Chestnut-breasted Finch. He thinks this is due to the two being compelled to associate by a chance circumstance and producing hybrids. By nature *M. flaviprymna* is said to be a desert species which does not normally associate with *M. castaneithorax*. In May of the same year Mr. Seth-Smith published an interesting article illustrated by a plate representing intergrades between the two birds. He regards them merely as sub-species, the Yellow-rump being modified by the dry country which it affects, but liable to revert to the type of *M. castaneithorax* when subjected to a moist climate. As none of my birds have undergone this change I turned a pair into my larger garden aviary early in 1907; soon after the cock had its head torn off through the wire-netting by a cat, but the hen is still there as I write in January, 1908. As everyone will admit the winter has been an unusually wet one, and this with other small birds has generally spent the night in the open; but, so far, I see no change in the plumage, as I should like to.

WHITE-HEADED MANNIKIN (*Munia maja*).

Above head white, tinted on the nape and throat with buff; the back and wings dark red-brown; the flight and tail feathers with the inner webs dark brown; the rump and upper tail-coverts shining deep rufous brown; the centre tail feathers and outer edges of the remainder shining fiery rufous-brown; the lower part of the neck and the chest brownish buff; the sides dark red-brown; the belly, thighs, and under tail-coverts black; beak bluish-grey; iris of eye dark brown; feet slaty black. The female is altogether more smoky in colouring. Hab., Malacca, Sumatra, and Java.

The nest is of the usual character, and formed of various grasses; it is usually suspended in reeds. Two to three white eggs are said to form a complete clutch.

The White-headed Mannikin is another of the numerous birds which devastate the rice-fields.

When nesting in captivity this species behaves like its Black-headed relative. Indeed, one pair of Black-heads which I had exchanged partners and all nested together in the same box, but no eggs were hatched.

In captivity this bird is extremely hardy and long-lived; indeed (as recorded in my "Foreign Finches in Captivity") one of my pairs attained the respectable ages of seventeen and eighteen years respectively. Since they died I have had only one pair, but they are not always obtainable. Possibly, as they are intensely stupid birds, there may be little inducement to import them.

JAVAN MAJA-FINCH (*Munia ferruginosa*).

Differs from the White-headed Mannikin in its deeper chestnut colouring, entirely black throat and fore-neck; remainder of body below deep maroon, black in the centre. Hab., Java.

According to Bernstein (cf. Bartlett, Monogr. Weavers and Finches, p. 45): "During the months when the rice-fields are flooded and under cultivation, *Munia ferruginosa*, like the Rice-bird, inhabits small woods, thickets and hedges along the roads, or between fields and meadows; sometimes, also, it lives in little wildernesses formed by Alang-Alang and low bushes, which latter it seems to prefer, as I never yet found it missing in such places. As soon, however, as the rice begins to ripen it betakes itself to the fields, and by its numbers not unfrequently works considerable damage. Smaller and quicker in its movements than the Rice-



MANNIKINS.

(1) THREE-COLOURED.

(2) BLACK-HEADED.

(3) WHITE-HEADED.

bird, it is quite as easily kept in captivity on rice and other species of grain; it is also sociable towards other small birds and companions, with whom it is accustomed to sleep close together on the same perch. Its call-note, which one frequently hears, is a clear *wit-wit-wit*. I have never heard its song, but on the other hand have often found its nest. The latter is always placed in a low position, a few inches, at most half a foot, above the ground; sometimes in a small shrub standing between the Alang-Alang; sometimes it is built among this grass and supported by its blades, but never immediately upon the ground. It is round in shape, with the entrance at the side, and is of considerable extent in proportion to the size of the bird, as its diameter usually amounts to 6 inches.

"All the nests which I have found belonging to this species were composed exclusively of blades and fibres of various grasses, more especially of wool-bearing ones, which materials were only loosely woven together on the outside, and were also mixed with larger leaves and those of the Alang, which gave to the whole structure a somewhat dishevelled appearance, while inside they were carefully and more finely entwined, and well mixed with soft grass wool. The pure white, rather long-shaped eggs, of which usually six or seven, and but rarely four, are found in one nest, measure 16-17 mm. in diameter, in a few cases only 15 mm., while their greatest transverse diameter amounts to 11-12 mm."

This species has been exhibited at the London Zoological Gardens, and was in the late Mr. Erskine Allon's collection; it ought to be freely imported.

BLACK-HEADED MANNIKIN (*Munia atricapilla*).

This is very like the Three-coloured Mannikin, excepting that there is no white on the under surface of the body. The male has a central longitudinal black stripe from the chest to the root of the tail, including the under tail-coverts. The female is a very little duller in colouring, and the black stripe is partly obscured by brown. She is also rather smaller, and has a slightly longer and narrower beak. The young is dull brown, slightly tinged on the rump with rufous; the chin, throat, abdomen, and under tail-coverts buffish-white; the bill bluish-white, as in the adult birds. Hab., Himalayas, Central India, Burma, and Malaysia.

In its native haunts the Black-headed Mannikin makes its nest of dry grass or straw, and lines it with finer grasses. The structure is usually spherical, with entrance hole in front, and is suspended in long grass, reeds, bamboos, thick bushes, or scrub. The breeding season appears (on the testimony of various observers) to extend from April to August, and the number of white eggs deposited to vary from two to six, but two can hardly represent a complete laying.

This little bird is so abundant that occasionally the market is glutted with specimens in perfect plumage. At such times the price is so low that the profit of importation must be almost covered by the food eaten or the voyage, and can hardly be advantageous to the importers. I have bought it at the absurd price of 5s. per dozen. In April, 1887, my sister brought me from India a pair of young birds of this species, and until they moulted I wondered what they could be; after their first moult they assumed the ordinary plumage of the Black-headed Nun or Mannikin, but the black mesial stripe of the belly was not developed until a year later: the first appearance of the adult plumage, therefore, was similar to that of the Sumatran Mannikin, distinguished by this character alone from the Indian species, which occurs also in Borneo.

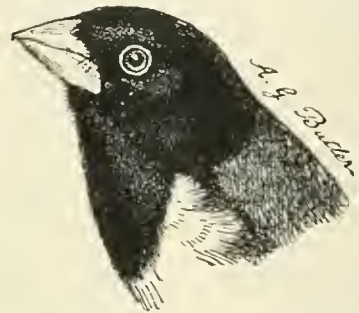
I should think there ought to be little or no difficulty

in breeding this or the allied species in a good-sized garden aviary where there was plenty of cover, but there is little chance of doing so indoors. It is always nesting and laying, but is a restless sitter, easily disturbed, so that I never succeeded in breeding it. Its song is like that of most of its congeners, feeble, vibrant, ereaky, and terminating in a thin whistle.

Although extremely hardy and long-lived, this and the allied Mannikins often lose their lives through the rapid growth of their claws, which get hung up in wire work or nesting material; so that, unless observed in time, the birds die of fright or starvation. The claws, therefore, need carefully looking to and cutting to a safe length with a sharp pair of scissors.

THREE-COLOURED MANNIKIN (*Munia malacca*).

The head, neck, front of breast, centre of belly, thighs, and under tail-coverts are glossy black; the back, wings, and sides glossy cinnamon-brown; the tail deep reddish-chocolate; the inner webs of the flight feathers dark rufous-brown; sides and back of chest, and sides of abdomen, snow white; bill bluish white; feet dark



THE THREE-COLOURED MANNIKIN.
(Head and shoulders of male.)

leadens grey; irides hazel. Female smaller than male, the black of a deeper character, not glossy; the entire colouring duller; flights greyer; rump paler; upper tail-coverts and tail duller and less opalescent; beak weaker. Hab., Central and Southern India and Ceylon.

In its wild state the Three-coloured Mannikin breeds in fields of sugar-cane, wild paddy, or coarse broad-leaved grass; also in reeds in ponds, tanks, or marshy places; rarely in a small bush. The nest is spherical or oval, with a circular front entrance, and is formed of dry reeds, broad grass-blades, and sometimes roots, and lined with finer grass and frequently the flowering stalks. The white eggs vary in number from four to seven, but four is the usual clutch. The birds are said to be very destructive to the rice crops.

Although, like most of the *Munias*, this bird is an assiduous builder, neither Dr. Russ nor I ever succeeded in breeding it in cage or aviary. It is, however, one of the prettiest of the commoner Mannikins, and for that reason I have never been long without specimens in my collection. To anyone with a large garden aviary, I would recommend that a few yards should be sown with coarse-leaved grasses or oats, and an attempt made to cross this bird with the Chestnut-breasted Finch. I believe that a very pretty hybrid might be produced.

The song is very feeble, and not unlike that of the Spice Finch, but I have not found *M. malacca* so frequent a singer as the other Mannikins.

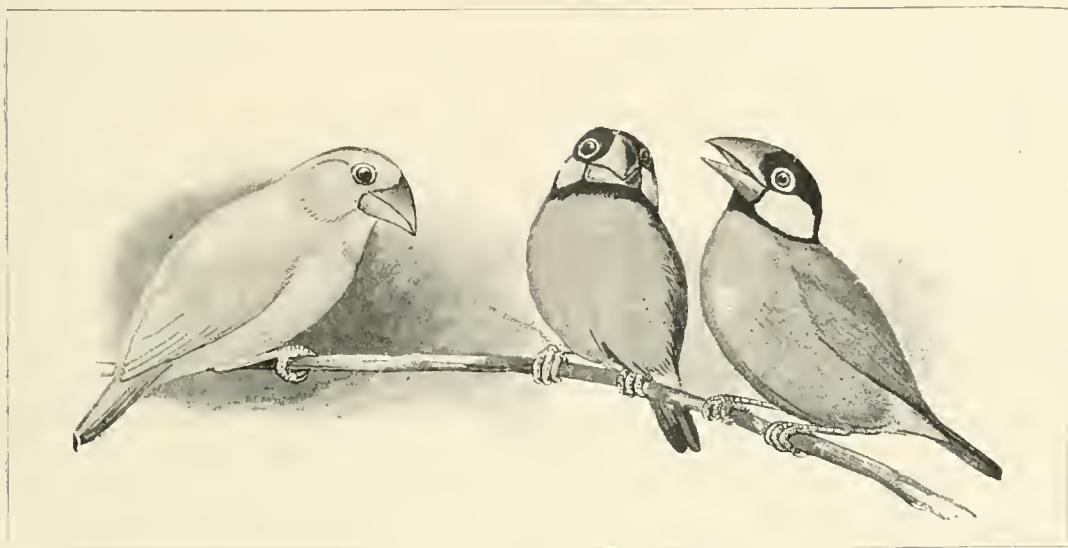
JAVA SPARROW OR RICE-BIRD.
(*Munia (Padda) oryzivora*).

The crown of the head, nape, margin of neck, and chin are black; the cheeks pure white, frequently changing into black; the back and breast pearl-grey; primaries leaden grey; belly dove-brownish, sometimes moulting into pearl-grey; under tail-coverts white; tail black; beak rose colour, edged and tipped with white; iris of eyes reddish-brown; lids red; legs flesh coloured. The female is distinctly smaller than the male, has a narrower crown, a narrower and more regularly tapering beak, not so deep at the base. With a little practice it becomes quite easy to select a pair. Hab., Java, Sumatra and Malacca, but introduced into many other countries.

The nest in a wild state is a large spherical structure placed in trees, thorny bushes, or creepers. It is

With white birds, on the other hand, breeding could always be accomplished because (probably for centuries) they have been bred in boxes. I failed to breed Java Sparrows until I crossed a wild cock bird with a white hen. The offspring from these birds varied not a little, some being pure greys like their father, others pied grey and white in all degrees. Since that time I have bred nearly every year, and have selected pairs from my stock with which other aviculturists have bred successfully. The white blood, and the fact that the young are born and brought up in a nest-box, seem at once to ensure a similar form of nidification in these home-bred birds.

In spite of the white blood which they inherit, I believe that selected greys will always throw greys; but the purest white stock will also sometimes throw pure greys; indeed, the brother of my pure white bird



JAVA SPARROWS.

formed of grasses, and has the entrance hole in front. Six to eight white eggs are deposited.

The song of this bird is always rather musical, including several soft little trills. There is a great deal of difference between that of the wild grey type and of the white domesticated form developed by the Chinese.

Owing to the immense mischief which this species does to the rice crops it is also known by the names of Rice-bird and Paddy-bird. Wherever it has been introduced it has increased and become a nuisance, just as our English Sparrow has done. Not that the Rice-bird is a Sparrow; it is only so called because it is the familiar bird of the streets and the grain fields in the East.

Although it is possible to purchase newly-imported grey birds at a ridiculously low price, it is of little use to attempt to breed with these, excepting in a netted-in garden, where natural nesting sites abound. Previous to 1870 it appears not to have been bred even in Germany, the wild birds not understanding, apparently, the meaning of the box-like nesting receptacle.

(the mother of my stock) in the nest was not distinguishable from a wild grey bird, though both its parents were pure white.

Some years ago one of my neighbours purchased a pair of white Java Sparrows, and turned them into a smallish aviary in his greenhouse, but they made no attempt at breeding. Eventually he became so disgusted that he caught them, and brought them to me, saying that he believed he had been taken in, and that they were two cocks. I looked at them, and assured him that they were unquestionably a pair. However, he was not satisfied, and told me I could have them at half what he had paid for them. I accepted, and turned them out in my bird-room; and that year they reared nine beautiful white youngsters. You can fancy my friend's disgust when he saw them!

Canary, millet, and oats are the best seeds for this bird; soft food should be added when breeding commences, which may be at any season. The Java Sparrow is absolutely hardy and very long-lived, especially if home-bred.

MAGPIE-MANNIKIN (*Amauresthes fringilloides*).

The male above is deep chocolate-brown, the front of the back, scapularies, and median wing-coverts with white shaft streaks; the entire head and throat, rump, and tail black with a steel-greenish gloss; outer tail-feathers with a white fringe to the inner web; under parts white, slightly sordid towards the vent; a large purplish-black patch at the sides of the breast, and behind it a patch of clear liver-brown with blackish bars; thighs partly black; beak leaden grey, the upper mandible darker than the lower; feet leaden grey; iris dark brown.

The female is very similar, but slightly smaller, with narrower, more gradually tapering beak and more sordid under parts; the liver-brown patch slightly smaller. Hab., Central Africa from east to west and North-Western Africa.

The following notes on the wild life I quote from Shelley's "Birds of Africa," Vol. IV., Part 1, pp. 161-162: "Mr. Robin Kemp informs me, 'these Mannikins are locally abundant, associating freely with *S. cuculatus*. At Rotifunk there was a large colony of them, roosting and nesting in mango, lime and orange trees, in the enclosed compound which contained one bungalow. However, at Bo, eighty miles inland, I saw it once only during two years' observation, when I met with three of these birds together on a rice farm of a previous year.' In Liberia Dr. Büttikofer found the species breeding in November. The nests were usually placed singly, in forks of fruit-trees, at five to ten feet from the ground, and were very similar to those of other species of *Spermestes*, tolerably large, constructed of grass and various materials, lined with the softer portions of the grass, and were oval in form with an entrance at the side. The eggs, generally six in number, were pure white, and measured 0.6 by 0.44. Fisher gives a similar description of a nest of this species, containing six white eggs, which he found on the island of Zanzibar.

"In Eastern Africa its most northern range appears to be Zanzibar Island, where it is plentiful, and known to the natives, according to Fischer, as the 'Tongo simba.' He met with them here frequenting the cultivated fields in parties of six to eight."

I purchased my first and only pair of this Mannikin in 1896, and placed them in one of my smaller flight cages. For several days they quarrelled so continuously that I feared they must both be males. I therefore caught and carefully compared them, when I was at once satisfied that I had an undoubted pair. Curiously enough, when I restored them to their cage they became friends almost directly, and ever afterwards agreed perfectly.

I believe it was my failure to take a prize with this pair of birds which finally decided my giving up sending birds to shows. They were rare at the time, and I took some trouble to provide them with a cage which would exhibit them to advantage. When I went to look at them I found that they had not even obtained a notice, whereas two cocks in a small cage adjoining had been awarded first. I asked the judge why the latter had taken premier honours while my pair had been ignored; he replied that they were larger birds than mine. I pointed out that as both were cocks, and not a true pair, they naturally appeared to be larger; he said he knew nothing about the sexes, but he, of course, gave the prize to the larger birds. Whether matters are better managed now I do not know, but I concluded that it was of no use to send birds to a show if the appointed judges were incapable of judging them fairly. In those days there were many prize-winners which ought to have been disqualified on the ground that they

were not pairs, and sometimes not even two of the same species.

Finding that my pair did not breed in a small flight, I transferred them to one of my largest cages, such as most beginners would dignify with the title of "aviary"; here they occasionally made some pretence at building, but soon seemed to weary of their task, and retired to their usual roosting-place on the top of the nest-box. Finally I transferred them to one of my birdroom aviaries, where they remained for the rest of their lives. The cock died on the 13th August, 1900, and the hen, I think, about two years later during her moult; her skin was not worth preserving.

I have never heard these birds sing, and even their call note is a weak plaintive little whistle frequently repeated. They should be fed like Java Sparrows, and seem to be equally hardy.

TWO-COLOURED MANNIKIN (*Spermestes bicolor*).

The upper surface, throat, breast, and sides are glossy black, each feather, excepting the flights, being fringed with dark green, the lower part of the breast, abdomen and under tail-coverts snow white, a few of the lateral feathers barred with white so as to give an irregular outline to the black of the sides; bill bluish; feet blackish; irides brown.

The following notes are from Shelley's "Birds of Africa," Vol. IV., Part 1, pp. 163, 164:—"In Liberia, according to Dr. Büttikofer, it is abundant and generally distributed, frequenting human habitations even more than *S. fringilloides*, which it resembles in its habits and feeding. It breeds in the plantations and trees in the middle of the villages, also in the roofs of houses. A nest he found in August at Soforé Place contained six pure white eggs, measuring 0.56 by 0.4. At Schieffelinville they were in flocks of about twenty individuals in the plantations. Fraser records them as 'common in the roofs of the huts belonging to the fishermen of Cape Palmas, in which situation they breed and commit much mischief, like our Common Sparrows. The native name is 'Saybue.'"

"Mr. Boyd Alexander found it at Prahsu, and writes:—"This species breeds in August, forming a domed nest of dry grass, which is placed between the small branches of a tree, generally an acacia." In Togoland it is known to the natives as the 'Airo,' according to Mr. Baumann, who procured a specimen at Jo."

This is a very rarely imported bird, which I only once possessed, and which, until I compared its body with the common species, I took for the Bronze Mannikin. Under this name I described it in *The Feathered World* as follows:—"The first specimen of this bird that I ever saw alive was caught in South Kensington, one very cold day, by a policeman, who sold it to me for half-a-crown. The poor little thing must have escaped from some aviary in the neighbourhood, been without food the greater part of the day, and the Sparrows had so frightened it that it was easily caught. I was much pleased with the poor little fellow, took him home, and put him in a cage with Waxbills, where he had a good supper and retired to rest, never to wake again in this world. A tiny Finch, about the size of a Zebra Finch. His colouring is pretty, though not startlingly brilliant.

RUFous-BACKED MANNIKIN (*Spermestes nigriceps*).

Above chestnut, rump and upper tail-coverts black, barred and spotted with white at the tips; wing-coverts slightly browner than back, excepting the inner ones which are chestnut; median coverts with a pale streak

near the tips; outer greater coverts, primary coverts and bastard-wing blackish edged with chestnut; flights black, with small white spots on outer web; inner secondaries rufescent externally, the innermost ones chestnut; tail black; head all round black; rest of body below white; thighs black externally; under wing-coverts and axillaries white, edge of wing mottled with black; flights below blackish, greyer at the edges, whitish towards the base. Female said to be slightly larger than male. Hab., East Africa from Natal to the Equator; a smaller form inhabits Somaliland.

According to Shelley ("Birds of Africa," Vol. IV., Part I, p. 167), "Fischer, in his letters from Zanzibar, informs us that he found the species in flocks of twenty to thirty in the fields, feeding in company with other small Weavers, and he once met with it in the town, where it is known to the natives as the "Tongo Kanga," the word "Tongo" being apparently the generic name for all the members of the group, and might be translated as "Mannikin." He also met with the species at Bagamoio, Pangani, Mombas, Lamu, and the Tana River. Hildebrandt and Kalkreuth found a nest of this species near Mombasa in July; it was placed in a bush and constructed of grass. The egg is described by Mr. Nehrkorn as being white and measuring 0.56 by 0.40."

Mr. Hawkins exhibited a specimen of this rare Mannikin in 1895, 1896, and 1897. Specimens were imported and advertised in 1907, and doubtless then got into the hands of various aviculturists.*

BRONZE MANNIKIN (*Spermestes cucullata*).

Brown above; the top of the head darker and with a greenish gloss, the forehead nearly black; the lower back is paler, becoming whitish with dark brown bars on the rump and the upper tail-coverts; tail dull black; a band of metallic green crossing the shoulder; wings brown, the lesser coverts sometimes slightly greenish, outer webs of primaries narrowly whitish; the sides of head as well as the chin, throat, and chest bronze-brown with faint purplish gloss, the fringes of the feathers greenish; breast and abdomen white, the sides barred in front with greenish black, behind with brown; under tail-coverts with blackish bars; beak leaden-grey, the upper mandible darker; feet dark horn-brown; iris brown.

The female is a little smaller than the male, has a narrower head, and more regularly tapering beak; her breast-patch is slightly more restricted and less glossy, and the upper parts rather browner; as a rule, when fully adult, the metallic shoulder band is smaller than in the male, but I have met with exceptional specimens in which this band was very prominent. Hab., West Africa from Senegambia to Angola, and across Equatorial Africa to the Kavirondo district, east of Victoria Nyanza.

In Shelley's "Birds of Africa," Vol. IV., Part I, pp. 168-170, are various accounts of the wild life by different observers. The following will be sufficient for the present work:—Ussher writes: "Exceedingly common on the west coast, where large flocks of them, in company with other Finches, rise, when disturbed, from the long grass, on the seeds of which they are very fond of feeding. They are captured in some quantities by the natives on various parts of the coast, especially at the Gambia and in the French settlements of Senegal, when they are exported, with many other varieties of Finches, to Europe."

Mr. Kemp writes from Sierra Leone: "The nests are somewhat spherical and are placed in thick, small

bushes, banana trees, the palm-leaved roofs of huts, or other convenient places, from the middle of August to February, and usually contain five eggs of a dirty white colour. In the rains they roost in these nests, often five or six birds together, and can be caught at night with a butterfly net and a lantern."

Four represents the normal number of the white eggs, but as many as seven may be laid. In captivity a cigar nest-box is usually selected, but Dr. Russ found that a Hartz cage was preferred. This gentleman bred the species abundantly even in a small cage, but I have hitherto not been successful, having lost most of my hens through egg-binding. One I saved and turned into a good-sized aviary, where it consorted with Sharp-tailed Finches. Another, mated to a Parson Finch, was always building, but without result. It is quite a hardy species.

Why this species should be so much more freely imported than the Two-coloured species (which also occurs in Western Africa) I cannot explain. Both are pretty little birds.

BIB FINCH (*Spermestes nana*).

The male above is brown, with the rump and upper tail-coverts straw coloured; the primaries, outer secondaries, and tail blackish; crown of head greyer than back, sides of head grey, the lores and a bib-like patch on the throat black; under parts pale fulvous-brown, slightly greyer on the breast; under tail-coverts blackish with ochreous margins; upper mandible black, lower whitish; feet flesh coloured; iris brown.

I am not sure of the sexual differences in this bird, not having seen enough examples to be quite certain; but I believe the female to be a little smaller and more slim in build, with a slightly smaller black bib. Undoubtedly both sexes have this marking. Hab., Madagascar and the small island of Mayotte.

Grandidier, in his splendid work on Madagascar, says that they are to be met with in all plantations and cultivated ground in flocks of from twenty to forty individuals. They are constantly on the move, climbing along the stems of the corn, or flitting from one tuft of grass to another, disappearing quickly when alarmed. The nest is woven out of the stems of grass and lined with softer grass; they lay three or four eggs in a nest. Grandidier incorrectly describes the eggs, which, as usual, are white, measuring, according to Nehrkorn, 0.56 by 0.4.

The Dwarf or Bib Finch (sometimes called the "African Parson Finch") is the smallest of all the Mannikins, and one of the most pleasing. Unhappily, when imported, which is only now and then, though it is cheap enough, it is, as a rule, in very poor condition; indeed, the two or three which I have purchased only survived a few days, being badly pecked and thin. The species is a native of Madagascar and the Comore Islands.

Dr. Russ says that it was first bred in 1885 by Lieutenant Hauth, four young being reared, after which it often bred with him. They are readily induced to breed and bring up their young with certainty. In two instances Bengalees incubated and brought up families of these birds. Three to seven eggs are laid usually in a Hartz cage, the nest being formed of cocoa-fibre, fragments of wadding, and feathers. Incubation lasts thirteen days.

In this country the Rev. C. D. Farrar has bred the Dwarf Finch in his garden aviary. Undoubtedly the most certain and easiest method of breeding most foreign birds is to net in a large portion of one's garden with growing shrubs in abundance and plenty of shelter; only everyone cannot make up his mind to do this.

* I believe the late Mr. Erskine Allon also had specimens in his bedroom.

CHAPTER XIV.

WHYDAHs AND WHYDAH-LIKE
WEAVERS (*Vidua*).

The Whydahs.

These birds have a very distinct summer plumage, which the males assume at the approach of the breeding season. In most of the species the upper tail-coverts of the males are at this season developed into enormous graceful plumes which extend far beyond the true tail. The females and the males when in winter plumage are soberly coloured birds which remind one of the European Sedge-Warbler or the Corn-Bunting. The Whydahs are nearly all polygamous; and, like most polygamous birds, the males do not trouble about building the nest or rearing the young, but leave these duties entirely to the females. The Combasou, which is an exception to this rule, differs also in its method of nidification and in its white eggs; it is, in fact, in some sense a link between the true Whydahs and the Ornamental Finches; nevertheless, the Combasou and its local races are linked to the long-tailed species through *Vidua hypocherina*, a rare little "Black Whydah," of which Mr. Fulljames exhibited a very perfect specimen at the Crystal Palace in 1898.

There are one or two habits which are common to all the Whydahs, including the (short-tailed) Combasou, viz., when feeding they scratch on the earth or in the seed-pan with a little backward shuffle which sends the sand or seed flying to a distance, and when courting they rise up and down in the air above the female like gnats, flapping their wings with regular and noisy beat.

The nests are domed, hut-like structures, and the eggs, with the exception of the forms of *Hypochara*, are (I believe) always coloured.

The Whydahs are hardy birds, feeding chiefly upon white millet and canaryseed, and occasionally small insects or their larvæ.

SHORT-TAILED WHYDAHs.

These are represented by the *Hypochara*, two or perhaps three species (or races) of which are sold indiscriminately in the bird-market under the name of *Combasou*; strictly speaking I believe this name applies to the West African type: Captain Shelley rightly alters the specific name of this bird to *H. chalybeata*, under which name it was described in 1776, whereas the name *anea* was not given until 1854.

COMBASOU (*Hypochara chalybeata*).

Black, glossed with greenish blue, flights and tail-feathers partly blackish-brown; beak pale creamy yellowish; feet salmon-red; irides brown. Female above brown; upper back, scapulars and inner wing-coverts with dark centres; remainder of wing and tail dark brown with narrow pale edges to the feathers; crown with a longitudinal buffish stripe edged broadly with blackish-brown; sides of head buff, brownish on ear-coverts, dark brown on the upper portion; under surface pale brown, becoming white at centre of breast, abdomen and under tail-coverts; beak horny white; feet rosy pink; irides brown. Hab., Senegal to Grand Basam.

Of this, the most frequently imported of the forms of *Hypochara*, no field notes appear to have been published, but doubtless it has the same habits as its near relatives the Ultramarine and Steel Finches.

In captivity, although the Combasou is always ready to breed, and is very energetic in defence of its nest,

it is quite unusual for any brood to be reared; even Dr. Russ, after numerous trials, was only once successful in obtaining young.

The Combasou is an excitable little bird, but perfectly innocent; its call-note is a chirp, and its song a harsh sputtering chatter, which reminds one somewhat of Castanets. I have had a good many examples of both sexes, and have found the hens—when they did not die through egg-binding—even more hardy and long-lived than the cocks.

The breeding-plumage, both of this and the Ultramarine Finch, is usually assumed between the months of July and September, but it is not an uncommon occurrence for an old male to retain its summer dress for several years in succession, and to die when at length it puts it off; one of my birds retained its full-dress uniform for about four years.

STEEL FINCH (*Hypochara amauropteryx*).

Darker than the preceding, apparently greenish black; wings brown: otherwise similar. Hab., Congo, southward through Ondonga to the Transvaal and through Central and Eastern South Tropical Africa. (cf. Shelley.)

One writer describes the beak as dark pink and another as red; but there is not the least doubt that all the examples of the three imported types agree in having pale creamy-yellowish or ivory whitish beaks. I should imagine that the error arose at a time when these birds were in winter plumage and perhaps mingled with examples of some red-billed *Vidua* in similar plumage.

Stark says of the habits of this bird: "Resemble those of the other species of the genus. Mr. Barratt writes in *The Ibis* for 1876, p. 207, under the synonym of *Chalybeata*, "I found a few of this species in and around a large fruit-garden, a few miles from Rustenburg. The ones procured were scattered about the hedgerows, where I shot them."

Under *H. funerea* (which he considers only sub-specifically distinct, as I do the whole of the *Hypochara*): "Very little has been recorded regarding the habits of the present Widow-Finch."

I do not think the present type has ever been in my possession; but, as most of my males died in moult and consequently were not worth preserving, I have no means of deciding the point.

ULTRAMARINE FINCH (*Hypochara ultramarina*).

Glossy prussian blue appearing black in certain lights; flights and tail blackish. Soft parts as in the other species. Female dark brown, the feathers with dull whitish margins; head with a central abbreviated longitudinal buff-whitish stripe, a second above eye and a third below it; body below sordid whitish; throat, breast and flanks dull greyish more or less fulvescent, as also the vent; tail smoky-brown. Hab., Gold Coast to the Niger and eastward over Northern Tropical Africa to as far north as 23 deg. N. lat.

In its wild state this species breeds either in holes in trees or in houses, sometimes in Swallows' nests, building after the manner of our House Sparrow, with any rubbish it can collect together, under rafters or in odd corners; the nest is neatly and warmly lined, and three to five pure white eggs are deposited. When not breeding, or even when rearing the young, the adult birds collect together in the *durah* fields, in which they play havoc, and on the floors of barns and stables. The breeding season seems to continue from January to September; naturally this bird rears several broods during the year.

In my aviaries the "Ultramarine Finch," so called, although it is black glossed with bright steel-blue,

seemed always to select a Hartz cage for breeding purposes. I never succeeded in rearing any young; in fact the hens generally died egg-bound, sometimes with the second egg, which was doubly irritating.

RESPLENDENT WHYDAH (*Vidua hypocherina*).

Glossy steel-blue; wing-coverts black, edged with greenish blue; primary-coverts brown; flights black with whitish edges; innermost secondaries glossed with steel-blue; tail black; inner webs of feathers edged with whitish at extremities; long central feathers greenish; a few greyish-white feathers on flanks; a large white patch below wings at sides of back; under wing-coverts and axillaries also white; flights below greyish, white along inner webs; beak and feet dusky; irides dark brown: in winter said to resemble the female, but probably larger and darker. Female above generally mottled deep brown with broad rufescent buffish borders to the feathers; some of the median coverts bordered and the primaries narrowly edged with white; tail-feathers similar; head with centre of crown reddish buff bounded on each side by a broad black band from beak to nape; a broad white eyebrow-stripe washed with reddish buff at its extremities; cheeks and ear-coverts of the same colour, but the latter surmounted by a black streak; under surface white, suffused with reddish buff at the sides of breast and abdomen, the latter also with brown shaft-stripes: beak and feet pale brown; irides brown. Hab., Ugo to Somaliland and Southern Abyssinia.

According to Shelley ("Birds of Africa," Vol. IV., Part I, p. 15), Fischer "found these birds in flocks of from ten to thirty in company with *Lagonosticta brunneiceps* and *Vidua serena* feeding on the bare ground, where caravans had halted and left scattered corn behind. In Somaliland Mr. Hawker saw these birds only at Arabsiyo and Hargeisa; at the latter place they joined in flocks with other Finches on the 'jowari' stubbles." This is all I have found respecting the wild life.

In captivity this Whydah is often called the "Long-tailed Combassou." As already stated, Mr. Fulljames was the owner of a beautiful example in 1898, and it has been exhibited at the London Zoological Gardens, but it has never been a common species in the bird-market. Dr. Russ does not include it in his work.

PIN-TAILED WHYDAH (*Vidua principalis*)*.

The male in full colour has the top of the head, chin, and back, a short band running forwards on each side on to the chest, and the tail greenish black; wings black, with a broad band of white running across the coverts, the larger coverts edged with buff; the throat, a narrow ring running round the back of the neck; the breast, belly, and under tail-coverts white; beak, coral red; iris of eye, dark brown; legs, reddish brown. The female above is mottled brown and black; on the head are six blackish stripes intersected by brown stripes, dotted with dark brown, excepting in the region of the eye; the under parts are whitish stained on the flanks with tawny. Hab., Africa south of about 17 deg. N. Lat., also the islands of St. Thomas and Fernando P'o. (Shelley.)

In its native country this species is seen, either in pairs or in small flocks; it visits Damara and Great Namaqualand during the rainy season; in its wild state it feeds on various grass-seeds.

Stark ("Birds of South Africa," Vol. I., p. 147) observes that "in addition to its wide range, this

species of Widow Bird, in South Africa, everywhere largely outnumbers its congeners, and in many districts is a very common bird. During autumn and winter they occasionally collect in very large flocks, frequently mingled with those of the smaller Weavers and Waxbills. In summer they disperse in smaller parties, each consisting of a single male and from ten to forty or even fifty females. The Pin-tail Widow Bird is much more lively and active in its movements than are the two other species of the genus, and the cock is, notwithstanding his long tail, an excellent flier. As Ayres remarks, "During the breeding season, when the wonderful tail of the cock bird is fully developed, he will sometimes rise until nearly out of sight, when he suddenly descends with much velocity, and if approached makes off with ease and swiftness." The same gentleman writes, "The male of this species has a curious habit of hovering over his mate when she is feeding on the ground, bobbing up and down as you see the Mayflies and Midges do on a summer's evening in England. This exercise he generally continues some minutes without resting." Like the other Widow Birds the present species feeds upon small seeds, principally grass-seeds, also upon small insects and their eggs. Its ordinary call-note is a sharp chirp, but in spring the male utters a soft warbling song from the top of a bush or tall weed. In Natal this species breeds during the wet season, from November to the end of February or beginning of March. A somewhat openly woven domed nest of fine grass is suspended between the stems of a thick grass tuft a few inches off the ground, the ends of the growing grass being tied together over the nest so as to completely conceal it. The only nests that I have seen contained young birds, from three to four in number. The eggs have not been described."

Capt. Shelley says "Birds of Africa," Vol. IV., Part I, p. 19): "The egg is glossy greyish white, with underlying violet marks and clear black or dark brown elongated surface-marks evenly distributed. It measures 0.08 by 0.50."

In the Journal of the South African Ornithologists' Union, 2nd Ser., Vol. I., pp. 9-11, is a paper by Mr. Austin Roberts, in which he concludes that the Pin-tailed Whydah does not build its own nest, but is parasitic upon the various Waxbills, devouring one or more of their eggs and substituting its own eggs for them. From what he says, it is evident that the larger eggs which frequently occur with those of the normal size in the nests of Waxbills are pure white, whereas the egg described by Captain Shelley, without any note of doubt, as that of the Pin-tailed Whydah, is nothing of the kind. I must confess that I consider Mr. Roberts' notes far from conclusive. Other Whydahs build their own nests and lay spotted eggs; therefore why, on the strength of the statements of negroes, the discovery of eggs of two sizes in the nests of Waxbills and the fact that *V. principalis*, like many other birds, is an egg-stealer, should we come to so improbable a conclusion as that this bird alone among the Whydahs has the instincts of a Cuckoo or a Cowbird?

In an aviary I have found this Whydah unbearable when in breeding plumage, though quiet at other times; with its long tail it looks much larger than it actually is, and its evolutions are so rapid that when flying it resembles a winged tadpole rather than a bird; being certainly polygamous by nature, as nearly all the Whydahs or Widow-birds are, it no sooner spies a hen of any Weaver feeding quietly than it darts perpendicularly downwards from its branch, like an arrow from a bow, and as it nears the unsuspecting little thing it gives a squeak, as if hurt, and the two roll

* Shelley has substituted the name *serena* for *principalis* because it was printed on page 312 and *principalis* on page 313 of the "Systema Nature." Strictly speaking he is correct in doing so, but it seems a pity where both names were published simultaneously to upset the one which is best known.

over, struggling and biting on the sand for a minute, then up it goes perpendicularly like a rocket, as if it would infallibly strike the ceiling, but turns just in time and drops back to its branch, whence it looks sharply round for another victim. Thus, except when feeding, this mischievous sport continues throughout the day.

After a male Pintail had displayed its beauty and tormented its companions in one of my aviaries for two seasons I took compassion on the latter, and confined the active little fellow in a large domed cage, but soon after he caught cold, and died in a decline.

This Whydah is of about the size of an English Siskin, but has much longer legs, and a tail which increases in length with the age of the bird. Thus my specimen in 1890 moulted out a tail having only two long feathers, which measured $9\frac{1}{2}$ in.; the following year it produced four feathers in place of the two, and when it moulted I saved the longer plumes, which measured $10\frac{3}{4}$ in.

Mr. Boyd Alexander says that "the males have a laboured flight, as if they were weighed down by their long tails"; but it seemed to me that so far from hindering the bird's flight the tail seemed to assist it, enabling it to twist about in all directions with almost lightning speed.

SHAFT-TAILED WHYDAH (*Tetanura regia*).

Above black; feathers of rump grey at base; bastard-wing, primary coverts and primaries smoky brown, the latter narrowly edged with whitish-brown; tail-feathers, excepting the central ones, similar to the primaries, but the outer ones with a large white spot at extremity of inner web; a broad tawny buff collar behind head; ear-coverts, cheeks, and under surface also tawny buff, rufescent on sides of body, where there is a large tuft of silky white plumes; sides of vent and under tail-coverts black; under wing-coverts and axillaries white, yellowish at edge of wing; flights below blackish, their inner edges white; beak and feet coral-red; irides dark hazel. Female above rufescent brown with broad dark brown centres; wing-feathers blackish-brown edged with buff; tail short, blackish-brown; the feathers edged and the three outer pairs tipped with buff; head and neck buff, with a broad band of feathers coloured like those of the back on each side of the crown from the nostrils to the nape; under surface white, with the throat and sides of body sandy buff; under wing-coverts white; flights below paler than above and with whitish inner margins. Male in winter plumage similar to the female, but doubtless a trifle larger and darker. Hab., "Southern Africa between 15 deg. S. Lat. and 31 deg. S. Lat., and westward from 30 deg. E. Long." (Shelley.)

Stark ("Birds of South Africa," Vol. I., p. 149) observes:—"I have only had limited opportunities of observing this species in Natal, where I have found it frequenting much the same localities as the commoner *Vidua paradisæ*, grassy plains and marshy ground interspersed with groves of trees or bushes. It is polygamous, each male in spring being accompanied by from ten to twenty females. At this season the beautiful cocks are very pugnacious and are constantly fighting and chasing one another, their long tails by no means incommoding their flight, as is the case with *Vidua paradisæ*. They are, indeed, of much more active habits than are the latter birds. Their call-note is a sharp chirp, occasionally uttered, but the cocks, in moments of excitement, indulge in a short and rather feeble song. They feed almost entirely on grass-seeds. Although I have never found a nest, I have every reason to suppose, from having on several occasions carefully watched the birds, that each female builds a

separate one in the long grass, the cock not interfering, beyond keeping watch and warning the hens by his alarm-call, should danger approach."

In the "Journal of the South African Ornithologists' Union," 1st series, Vol. II., p. 27, Dr. E. Symonds remarks of this bird in the Orange River Colony: "The males are often seen together in pairs accompanied by a crowd of sober-plumaged females. They are very fond of sitting on a wire fence and flying rapidly to and fro between the ground and the fence. They are mostly found on the outskirts of the town and in the gardens. On a farm some distance from here I observed a pair of males as usual and several females, and a nest was commenced in a peach tree, but never finished, though protected as far as possible. I kept one once in my aviary, but he died before changing his garb. They seem delicate and difficult to keep in confinement, like some others of the same family."

Russ says that examples of this rarely-imported Whydah have occasionally come into the hands of Messrs. Hagenbeck, Jamrach, Madame Poisson, and more recently of Gaetano Alpi of Trieste, but in their winter plumage, in which they were not recognised by these dealers. He picked one out of a lot of Whydahs out of colour which he received from Carl Hagenbeck, but unfortunately it died before coming into breeding plumage. He quotes Vieillot as saying that it must have a very large cage and a frequent bath to keep it in health, that he himself thus kept it for from eight to ten years. To breed it one must provide a temperature of from 25 to 30 degrees (R.) and fit up the cage with evergreen bushes. It is difficult, but well worth while, to induce it to nest. As Dr. Russ observes:—"Whether the bird has actually been bred in captivity is not stated." Buffon says that this Whydah in his time was to be obtained in numbers in Paris, and according to Bechstein's testimony it was occasionally brought to England, Holland, and Germany.

In late years several examples have been visible in the London Zoological Gardens, and a pair owned by Mr. Townsend appeared at some of the London shows. Russ calls this species the "King Widow Finch," but Buffon for some reason or other called it the "Queen-widow," taking *regia*, I presume, to be an abbreviation for *regina*.

PARADISE WHYDAH (*Steganura paradisæ*).

When in breeding plumage the male has the head, including the throat, the back, the shoulders, wing coverts, tail, upper and under tail-coverts, and thighs black; flight-feathers brown; the back and sides of neck and the breast reddish mahogany, passing gradually into buff-whitish on the abdomen; rump white; beak black; feet brown; iris dark brown. The long tail-plumes lengthen and grow somewhat narrower with age, varying consequently from five or six to over thirteen inches, a fact which has led to the supposition that two species exist; by saving and carefully measuring the plumes each year this mistake is at once explained.

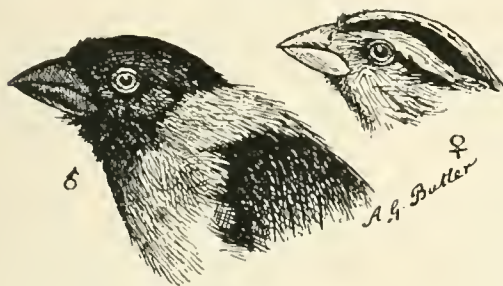
The female is reddish-brown above, and streaked with black; the crown pale buff-brownish with a few short streaks and a broad blackish stripe on each side; below this is a whitish superciliary stripe, and below this, from the eye to the edge of the ear-coverts, a second blackish stripe; the ear-coverts themselves and the cheeks are sandy-buff; the wing and tail-feathers are dark brown with paler borders, the under parts dull white, stained with buff-brownish on the chest and flanks; the beak horn brownish; the feet deeper in colour; iris dark brown.

When out of colour the male nearly resembles the

female, but is considerably larger and deeper in colouring, the crown broader, with the central area darker and more distinctly streaked, and the eye-stripe more buff in tint, the base of the beak broader; there is no difficulty in telling it at once from the hen. Hab., Africa generally, south of 17° N. lat.

In its wild state the Paradise Whydah frequents thorn trees and tall bushes, sitting chiefly on the bare upper branches, from which it takes short flights; at the moulting season the individuals gradually collect into flocks.

Dr. Stark says ("Birds of South Africa," Vol. I., p. 151): "The handsome cock, in spring and summer, is fond of perching on a prominent bush, from which he takes short undulating flights, returning invariably to the same perch. Occasionally he will hover for a few seconds over the grass in which one of his little brown mates is hidden, for he has many—from ten to fifty or more. At short intervals he utters a flute-like note, and now and then a few bars of his love-song. When at rest the longest tail feathers are allowed to hang down, but in flight they are carried horizontally. Like the other Widow Birds this species feeds almost entirely on grass-seeds. The change of plumage, from winter to spring livery, in the male is completed in about six weeks. 1



PARADISE WHYDAHs (Male and Female).

have never been able to find the nest of this species, nor, so far as I have been able to ascertain, has anyone been more fortunate in this respect than myself."

The species has been bred in Germany, the females alone constructing the nests and incubating as well as rearing the young; unhappily, the nests were not examined until after the hatching of the young, so that the colouring of the eggs was not observed.

The Paradise Whydah shows none of the restless activity of the preceding species; moreover, in old males the weight of the long tail seems to render flight somewhat laborious. It is a fairly hardy bird.

This beautiful and generally harmless bird is very freely imported and always reasonable in price, especially if purchased when out of colour. For many years I have had at least one male, sometimes several together in my aviaries; they seldom interfere with even the smallest Waxbills, although one purchased early in 1897 proved a trying exception to the rule and had to be removed to my Weaver aviary; its capture was so difficult that I fear the bird was overtaxed in its efforts to evade the net, for it died two or three days later.

LONG-TAILED WHYDAH (*Chera prognæ*).*

The male in breeding plumage is jet black, the under

parts being glossy, and having a banded appearance like watered silk; the shoulder is covered by a large patch of deep orange, relieved behind by an equally broad patch of buffy-white; the wing-feathers are more or less edged with white or pale brown; the beak is light bluish ash in summer, brownish flesh in winter; feet dark brown in summer, paler and flesh-tinted in winter; irides brown. The tail consists of long, broad, curved plumes, almost like cock's feathers, of a jet-black colour, and from 16 in. to 18 in. in length.

In its winter plumage the male resembles the hen, which is of various shades of brown, streaked and spotted with black, somewhat after the fashion of a Pipit; the eye-brow streak, the lores, and feathers encircling the eye whitish. In size this species nearly equals our Corn Bunting, which (when out of colour) it tolerably closely resembles in pattern. Hab., Benguela to Eastern South Africa from Cape Colony to the Transvaal. (Shelley).

This species, in its wild state, affects marshy ground, the long reeds about ponds and open flats. It builds its nest close to the ground in a tuft of hay grass, to the stems and blades of which it is roughly woven; the nest is carelessly constructed of fine grass, drawn together and fastened at the top somewhat after the fashion of an African hut, it is lined with the seed-bearing extremities of the grass; the opening, as usual, is formed at the side; the eggs usually number four.

Several writers have stated that the enormous tail of this bird is a source of inconvenience and even danger to him, rendering him almost helpless in a strong wind or during a shower of rain; Mr. Henry Bowker, however, says that he never enjoys himself so much as during a high wind, in which he shows off to advantage, spreading his tail out like a fan; Mr. Layard also mentions seeing one apparently drifting before a strong wind, which nevertheless was able to guide himself so as to keep out of gun-shot. These birds are described as roosting in hundreds, or even thousands, in the reedy morasses. The females apparently average from ten to fifteen to each male.

My friend Mr. James Housden, of Sydenham, has had a fair number of these birds, three or four of which I saw flying together in full plumage in one of his larger aviaries; they are very attractive, but, on account of their great size, I supposed that it would not be safe to trust them with smaller birds until, on the 11th April, 1907, I received a male in exchange for a pair of my hybrid Ouzels, and turned it into one of my smallest aviaries; I found it so quiet and tame that I did not hesitate, later in the year, to put a pair of young Chingolo Song-Sparrows in with it. I find it is absolutely amiable unless molested; one of the most quiet, good-natured birds I ever had; I believe it might safely be trusted with the smallest Waxbills unless it had a number of hens with it inclined to breed; that might temporarily alter its behaviour; but the same might be said of almost any bird. In the spring of 1908 the Chingolos amused themselves by pulling out its long tail-feathers to line a nest with.

RED-COLLARED WHYDAH (*Penthetria ardens*).

The cock in full colour is jet black, with the exception of a broad half collar of bright vermillion, or sometimes (probably in younger birds) orange, across the back of the throat; the feathers of the thighs and under tail-coverts are striped with grey on their edges. When out of colour this bird is buff-whitish variegated with black, the under parts white slightly stained with buff; the throat slightly tinged with vermillion; the wing feathers black edged with whitish; tail black;

* According to Shelley *Chera* was pre-occupied in the *Lepidoptera*, and therefore is inadmissible as a generic name; the species also was originally called *prognæ* (not *procnæ*); he calls it *Colinus prognæ*.

beak and feet black. Female above pale brown, with blackish centres to the feathers; a well-defined yellowish white eyebrow-stripe and a patch of the same colour below the eye; a black loreal band and a continuation behind the eye; ear-coverts buffish brown; below buff, chin and throat yellower; breast washed with tawny brown, with some darker shaft-stripes; wings below dull greyish, paler on the coverts; beak and feet pale brown; irides brown. Hab., Eastern half of Africa south of the Equator and ranges into Angola. (Shelley.)

In Sharpe and Layard's "Birds of South Africa," pp. 455, 456, are the following notes on the wild life: "Mr. Guillemard writes: *Vidua ardens* is not uncommon on the rivers of the north-western Transvaal, and may be met with even as low as Rustenberg. It is fond of haunting large reed beds, from which it does not seem to wander far; indeed, it is so shy that one is rarely able to get a shot at it. At a distance they much resemble *Chera progné*, from which they are only to be distinguished by their smaller size. In summer plumage the bill and feet are jet black, and, besides the tipping of the under tail-coverts with grey, there is occasionally a grey feather or two about the head.

"Captain Harford informs us that in Natal they fly in flocks, five or six males with about fifty females. This we also observed when we fell in with them in the swampy grass lands and fields of Kafir corn at Alice. The females usually hid themselves in the sea of herbage, diving to the bottom in a moment, while the males, after occasionally doing battle with each other, or hovering with the peculiar jerking, flapping motion, common to this genus and *Chera*, over some of the females concealed in the grass, would betake themselves to some elevated head of corn or rush, and thence survey the field. We feel convinced that all species of the genus *Vidua*, and also *Chera progné*, that we have encountered in South Africa are polygamous. This may also account for what Mr. Atmore and others tell us of the breeding of several females of *Estrela astrild* in the same nest."

Stark ("Birds of South Africa," Vol. I., p. 143) says: "The nests are domed, with a small entrance at the side, carefully woven of fine grass in the centre of a thick tuft of grass, many of the growing grass stems being built into the walls of the nest, while others are plaited so as to form an arched bower over it."

In Shelley's "Birds of Africa" is a note by Messrs. Butler, Feilden and Reid to the effect that this bird lays "little white speckled eggs."

A beautiful but by no means freely imported species, so that it always commands a tolerably high price, Messrs. Cronkshaw, Fulljames, Todd, and others have owned specimens of this Whydah; it is said to be decidedly pugnacious in captivity.

In Angola a form of the species is sometimes met with in which the bright collar is wholly wanting; although at first described as a distinct species, this is now known to be only a melanism or black sport of the common type.

WHITE-WINGED WHYDAH (*Penthetria albonotata*).

Black; lesser wing-coverts bright yellow; middle coverts edged with brownish-white; outermost greater coverts and primary-coverts white, remaining greater coverts tipped with white and edged with brownish-white; flights edged with brown, all excepting the innermost secondaries; under wing-coverts and axillaries white; tips of latter and edge of wing yellow; beak pale blue; feet black; irides hazel. Female above brownish black, the feathers broadly bordered with pale brown; lesser wing-coverts mostly yellow; a broad eyebrow-stripe and the under surface brownish buff,

whitish towards elin and centre of breast; under wing-coverts sandy buff, deeper on bend of wing; beak, feet and irides brown. Male in winter like the female excepting that the lesser wing-coverts are brighter yellow and the white on the wing is present as in summer; primaries also blacker. Hab., Natal to Ugogo.

Stark observes ("Birds of South Africa," Vol. I., p. 139):—"It frequents marshy ground on the borders of vleis, where, in summer, the male sits on the summit of a tall stem of grass or reed and shows off his glossy black plumage and yellow shoulder-knot, frequently puffing out the neck feathers into a sort of ruff, like a Bishop Bird, while opening and shutting his wings or occasionally taking a short flight and hovering, like a *Vidua*, with up-raised wings, over the grass, where doubtless one of his brown wives is concealed. I have never had an opportunity of handling a female of this species, but I have seen the male followed in his flight by ten or a dozen hens, who appeared to be of a very uniform brown colour, and very much smaller than the cock, as is the case with *Urobrachya axillaris*. The male described had been feeding on grass seeds and small beetles."

According to Shelley ("Birds of Africa," Vol. IV., Part I., p. 48): "The egg is described by Mr. Nehrkorn as of a deep blue, with dull red and violet spots clustered towards the thick end, and measuring 0.8 in. by 0.58 in."

This species seems to be rare in South Africa, and undoubtedly it is rarely imported; yet it has been exhibited more than once at the London Zoological Gardens, and in 1896 Mr. Swainsland exhibited a bird at the Palace Show which was supposed to be this species far advanced into the winter plumage.

YELLOW-BACKED WHYDAH (*Penthetriopsis macrura*).

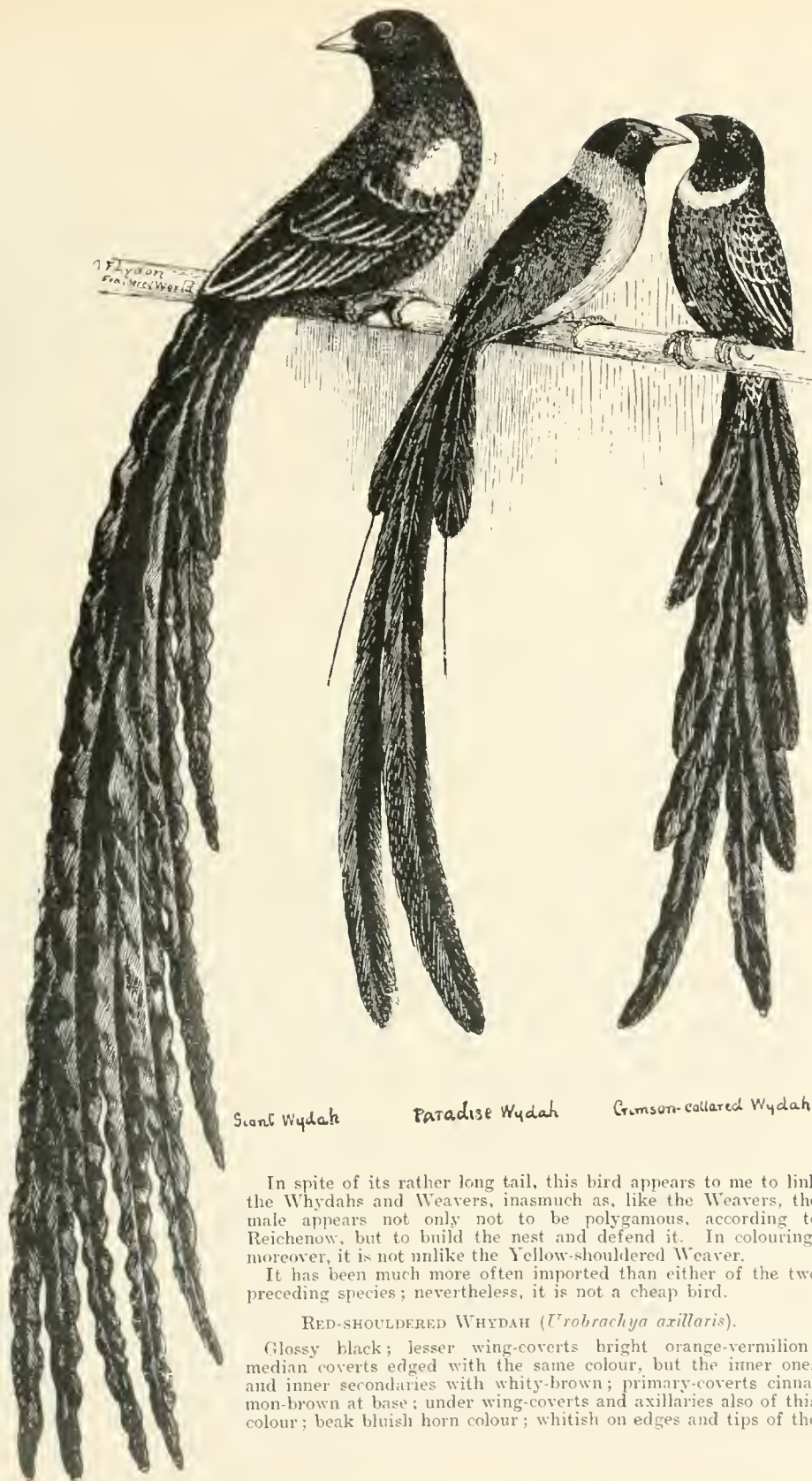
In breeding plumage the cock is jet black, but the mantle and shoulders of the wings are adorned with a broad belt of bright chrome yellow; the wing coverts are edged with tawny, and the flight feathers with narrower pale brown margins. The hen is pale greyish brown, the feathers of the shoulders and back edged with yellowish; the under parts whitish with darker markings on the breast; the beak and feet are pale flesh coloured, the upper mandible brownish; the iris brown. The male in winter plumage nearly resembles the female, but the wings are blacker and the lesser coverts are bright yellow. Hab., from Senegambia southward, the Niam-Niam country, Uganda, and the mouth of the Tana river to Angola and the Zambesi river. (Shelley.)

The following field-notes are from Shelley's "Birds of Africa," Vol. IV., Part I., p. 51:—"In the Niger district Mr. Hartert found them in June and July at Loko, in full plumage, assembling in large flocks with other Finches in the rice and cornfields."

"Along the Shiré Valley Sir John Kirk saw large numbers of them on the wide grass plains, flying from one grass-head to another, always selecting the highest. Knowing this, the natives catch them by setting a noose on any grass-head rising above the others. 'The breeding plumage,' he remarks, 'was assumed in December, and lasted throughout the wet season. The nest was made of grass, woven among the stalks.'"

According to Captain Shelley. "The eggs are pale green, or greenish grey, spotted with grey, and measure 0.8 in. by 0.55 in."

The Yellow-backed Whydah inhabits damp localities and builds its nest, which much resembles that of the Oryx Weaver, in tall grass; it lays from two to three eggs. The species is said to be abundant at Acera.



Small Wydah

Paradise Wydah

Crimson-collared Wydah

In spite of its rather long tail, this bird appears to me to link the Whydahs and Weavers, inasmuch as, like the Weavers, the male appears not only not to be polygamous, according to Reichenow, but to build the nest and defend it. In colouring, moreover, it is not unlike the Yellow-shouldered Weaver.

It has been much more often imported than either of the two preceding species; nevertheless, it is not a cheap bird.

RED-SHOULDERED WHYDAH (*Trobrachya axillaris*).

Glossy black; lesser wing-coverts bright orange-vermilion; median coverts edged with the same colour, but the inner ones and inner secondaries with whitish-brown; primary-coverts cinnamon-brown at base; under wing-coverts and axillaries also of this colour; beak bluish horn colour; whitish on edges and tips of the

mandibles; feet black; irides dark brown. Female brown, pale on upper surface of body and marked with broad blackish-brown centres to the feathers, which are less defined on the rump and upper tail-coverts; wing and tail-feathers blackish-brown edged with pale brown; the median coverts tinged with orange; the lesser coverts orange centred with black; sides of head and under surface brownish buff; a broad whitish-brown eyebrow stripe; a blackish stripe from the gape to the ear-coverts, which are also blackish along the upper and lower edges; flanks with ill-defined dark-brown shaft-stripes; under wing-coverts cinnamon; beak and feet pale brown; irides brown. Male in winter dress differing from the female in its orange-vermilion lesser coverts and black flight and tail feathers. Hab., "South Africa east of about 25 deg. E. long., and south of 10 deg. S. lat." (Shelley).

Stark ("Birds of South Africa," Vol. I., pp. 135, 136) gives the following interesting account of the habits of the species:—"In the lower parts of Natal these Widow Birds are common on the grass veldts, especially those that border on reedy vleis or marshy ground, where the grass grows luxuriantly. Like all the members of the genus, they are polygamous in their habits, and in spring the handsome males, looking very brilliant and spruce in their recently acquired plumage of velvety-black, with scarlet and orange epaulettes, may be seen flitting over the reeds or grass with a curious "flopping" flight, each one attended and closely followed in all his movements by ten or twelve females, insignificant-looking little brown birds, which nearly always keep close together in a "bunch" a few yards behind their lord and master. About the beginning of November the females separate and commence building their nests. These are never very close together, although they are all within a certain district that the male seems to look upon as his own exclusive property, and from which he drives other males of his kind, as well as those of the much larger and stronger *Colius passer procne*, who, hampered by their long tails, stand no chance in a fight with their smaller but much more active antagonist. Each female builds and occupies a separate nest. During the time she is sitting the male stations himself on a tall weed somewhere near the centre of his harem, and keeps a sharp look-out for intruders, occasionally flying round to see how matters are progressing at his various establishments. Should a man or other dangerous enemy approach, he flies to each nest in succession with a warning note, upon which the sitting females leave their nests, creep under the grass for some yards, then rise on the wing to follow him to a distance. The nest, usually built in the centre of a tuft of grass from eight inches to a foot off the ground, is a beautifully light and airy structure, oval in shape and domed, with a side entrance near the top; it measures about four inches and a half in height and three inches in diameter, is constructed of fine grass, with the flowering tops attached, woven in a sort of open network, so that the sides can be seen through, without any additional lining. The sides of the nest are attached to many of the surrounding grass-stalks, the blades and tops of the latter being bent over in the form of a canopy so as to completely conceal it from above. The eggs, laid towards the end of December, are three in number. They have a highly polished surface of a clear sea-green, marked with large spots and blotches of deep olive-brown. They measure 0.80 by 0.58.

"These Widow Birds feed largely on insects, including grasshoppers, locusts, mantides, and termites, also upon various seeds, especially small grass-seeds. In winter the old and young birds form good-sized flocks, but never seem to wander far from their breeding station."

Russ says:—"On two occasions, in the course of time, I acquired it from Ch. Jamrach, of London, without, however, being able in its miserable condition to keep it alive. Then I saw it in the Berlin Aquarium and in the Zoological Gardens of Cologne and Berlin, but each time only a male in imperfect breeding-plumage and with an uncertain tenure of life."*

This species has also been represented in the living collection of the London Zoological Society.

ORANGE-SHOULDERED WHYDAH (*Urobrachya bocagii*).

Black, with the exception of the ochre-yellow lesser wing-coverts, pale cinnamon median and greater coverts, buff bases to primaries showing also in front of under wing-coverts; beak whitish grey; feet black; irides brown. Hab., Portuguese West Africa between the Quanza and Cunene Rivers.

The winter plumage of the male and the female appear not to have been recognised hitherto, and all that appears to be known of its life is that Anchieta, who obtained it at Cacondu and Huilla, says that it is called by the natives the "Quicengo" in the former place and the "Lile" in the latter. Of the closely-related Mechow's Whydah no field-notes exist.

U. bocagii is recorded among the species which have been exhibited at the London Zoological Gardens.

The Weavers.

All who delight in hardy birds of brilliant plumage are sure to admire the Weavers; indeed, I find an aviary devoted to various species of these birds a great attraction to visitors.

If supplied with plenty of hay the Weavers, when in colour, will spend the greater part of their time in building their marvellous nests. These vary in character from the ordinary Viduine type to a purse-shape, or to a form resembling a gigantic snail-shell with the opening directed downwards in the Ploceine.

In the case of all Weavers which construct delicate-looking nests of open strongly plaited grasses or hay, the eggs are coloured; but in those stoutly and densely formed, as, for instance, those of the various Oriental races of Baya Weavers, which are so dense as to almost exclude the light, the eggs are pure white. Even the flimsy-looking nests are always extremely strong, and difficult to pull to pieces.

It is, I think, quite conceivable that the Viduine Weavers and Whydahs are descended from *Melopyrrha*, but the Ploceine Weavers from *Passer*. There is not the least reason why two or more branches of the *Fringillid* stock should not become modified in the same direction, and, by a shortening of the coverts of the bastard primary come to be associated in one family by systematists.

The males of Viduine Weavers are usually the sole architects of the nests. As a rule, the males of the Fire Weavers build, but I possess a nest which was entirely formed by the hen, proving that both sexes are equally capable. It is possible, I think, that some, at least, of these birds may be polygamous. In the Ploceine Weavers the males build the greater part of the nest, and are then assisted by their hens.

Although such inveterate nest-builders, the Weavers rarely breed successfully in captivity. The explanation of this probably is that the various species are usually kept in one aviary together. The best chance of succeeding would be to keep one male Weaver with several hens in an aviary supplied with plenty of cover and natural branches.

The songs of Weavers are by no means pleasing.

* Russ considered *Urobrachya* to be a link between the Whydahs and Fire Weavers.

When not breeding, millet, canary, and a few cock-roaches or mealworms are sufficient to keep Weavers in health; but they are not particular in their seed diet, eating oats, hemp, sesamum, sunflower, and other seeds, but they do not care for German rape, and will only take it when nothing else remains in the pan.

As usual I shall commence my account of this group of handsome birds with *Pyromelana*, the genus of Fire Weavers.

When first imported the Fire Weavers (sometimes called "Bishops") generally assume their breeding plumage rather late in the year, and the approach of cold weather may not only shorten the season of beauty during the first year of captivity, but I have even seen the bright colouring, before it had entirely reached its perfect development, gradually fade again from the plumage, leaving the bird as before. The greater part of the change to the wedding dress is, indeed, not produced by a moult, but by a growth of colour in the feathers themselves. The upper tail-coverts, which are short in the season of retirement, and the flank-feathers towards the hinder end of the body are always moulted out to make room for the long and delicate plumes which often envelop the tail. In some species, also, additional feathers are developed on the crown; but, undoubtedly, most of the plumage changes in tint day by day until it attains its full brilliance. After the breeding season is completed a moult takes place, and the males appear in the dress of their hens, from which their somewhat better defined and richer markings and their superior size alone serve then to distinguish them.

YELLOW-SHOULDERED WEAVER (*Pyromelana capensis*).

The male, in breeding plumage, is velvety black, with dark brown wings and a bright yellow lower back, which is well seen when the bird is flying.

The female, like that of most Weavers, has much the character of a Sedge Warbler, excepting in its beak, and is not unlike a small washed-out Corn Bunting in pattern. The male in winter plumage resembles the hen, but is larger. Hab., Cape Colony.

Dr. Stark ("Birds of South Africa," Vol. I., pp. 131, 132) thus describes the habits:—"This large Bishop bird is nearly everywhere common in the Western Colony, and although it seems to prefer the vicinity of marshy vleis or streams, it may be frequently found in very dry and arid tracts of country. The male in spring and summer is fond of uttering his harsh notes from the top of a tall bush or reed, and is then very conspicuous in his contrasting glossy black and yellow plumage. The female at this season is not often seen, keeping much to thick reed-beds or bushes, even when not sitting on her eggs. In autumn the old birds of both sexes, together with their young, form considerable flocks, which do not separate until the following spring. The long, loose, yellow feathers on the lower back and rump of the breeding male are erectile, and when the bird is approaching a hen, or is excited, they stand out at right angles to the body, giving him an extraordinary appearance, apparently irresistible to the impressionable female. The song consists of a series of harsh and discordant notes. Although these birds feed largely on grass-seeds or grain, and are accused by farmers of working havoc with the crops, they devour a considerable number of insects, and feed their young on small caterpillars and grubs.

Individuals that I have kept in confinement readily devoured nearly all the insects presented to them, showing a preference for mealworms or caterpillars. This species nests in September or October. The nest, a domed structure with a side entrance, is woven out

of fine grass, and is usually attached by its sides to three or four reed-stems; sometimes it is built in thick hushes at a height of four or five feet. The eggs, almost always four in number, have a pale greenish-blue ground colour, nearly concealed by spots, blotches, and lines of dark brown or slate colour. They average 0.85 in. by 0.60 in., and are hatched in about fourteen days."

On page 131 Mr. W. L. Selater confirms my statement as to the change of colour in many of the feathers of *Pyromelana* on the assumption of the summer plumage. He says:—"The change of plumage from the winter to the summer dress in the male is very gradual, lasting, near Cape Town, from about the middle of July to the middle of September. Only the feathers of the lower back, rump, and flanks, are entirely changed by a moult, the remaining plumage and bill becoming darker, owing to a gradual absorption of colouring matter, the change first appearing at the point of the lower mandible. In autumn the colour is gradually reabsorbed if the feathers are not previously moulted. According to Dr. Butler (*The Ibis*, 1897, p. 359), other species of *Pyromelana* change from their winter to spring dress in much the same manner."

According to Dr. Russ this is the easiest of all the Fire Weavers to persuade to breed in captivity. It is tolerably frequently imported, and, but for its somewhat quarrelsome disposition and powerful beak, would doubtless be a common and cheap bird in the market, but there is no great demand for it. Herr Wiener ("Cassell's Cage Birds," p. 409), says that he found it "quarrelsome beyond endurance," "hard-biting," and capable of committing havoc among shrubs planted in the aviary, "from sheer mischief." On account of its size I have never purchased this species, as I feared it might be dangerous if kept with the smaller Weavers, and at any rate would probably alarm them.

GOLDEN-BACKED WEAVER (*Pyromelana aurea*).

Above golden yellow; scapulars black edged with tawny; feathers of lower rump fringed at the ends with black; wings black; median coverts edged with white, and the greater coverts with tawny; flights with buffish margins; upper tail-coverts brown, mixed with black-tipped yellow feathers; tail black, the feathers with brown margins; the outer ones tipped with white; head, sides of neck and under surface black; lower flanks, thighs, and under tail-coverts white; under wing-coverts and axillaries buffish; flights below brown, whitish along inner webs; beak blackish; feet and irides brown. Female and winter plumage of male undescribed. Hab., "Island of St. Thomas and probably ranges from Gaboon into Benguela" (Shelley).

Nothing appears to be known respecting the wild life of this species. Two specimens were presented to the London Zoological Gardens in January, 1890.

NAPOLEON WEAVER (*Pyromelana afra*).

The cock is a lovely bird when in breeding plumage, the prevailing colour being brilliant chrome yellow; but the cheeks and chin are occupied by a large patch of black which encloses the eye. The nape of the neck, hind chest, and belly are also velvety black; the wings and tail brown; beak black, the legs flesh coloured; irides brown.

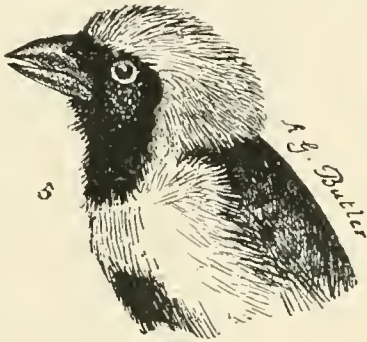
The female much resembles a Sedge Warbler in colouring and general pattern; it has almost as distinct an eyebrow streak as the Paradise Whydah hen. In summer plumage the colouring brightens; the streak over the eye becoming yellow; it then nearly resembles the male in winter plumage, but it is a

little smaller. Hab., Senegambia to the Niger; possibly Benguela.

According to Ussher it is seen at times in large flocks, and affects swamps; that is about all that is known of its wild life. It has, however, been bred in Germany, so that we know it builds a cave-like nest and lays four pale blue-greenish eggs.

When in colour the male is very excitable, puffs up its feathers and sings its strange song, which commences with four or five clicks and then goes off into a sort of hacking cough; the bird's plumes are also shown to great advantage in flight, which is short, jerky, abrupt, and very like a clockwork toy; between each flight, usually in pursuit of some other bird, the wings are jerked up and down over the bird in a most mechanical manner.

I have never known the Napoleon Weaver to injure another bird, but I had one killed in 1896 by an Orange Weaver. That the species is naturally long-lived is proved by the fact that a pair which I purchased in 1888 lived until the 21st August, 1900. One which I



NAPOLÉON WEAVER.

(Singing to hen with crest erected.)

purchased in 1907 was much persecuted by a young male of the Orange Weaver, which had not yet acquired its breeding plumage, but nevertheless was chasing and singing to the hens as well as making attempts to build with any stray bits of grass or hay which it could find. I have had a considerable number of specimens of both species, both males and females; they can generally be obtained when out of colour at about three shillings a pair, or even cheaper.

CRIMSON-CROWNED WEAVER (*Pyromelana flammeiceps*).

The prevailing colour of the male bird in breeding plumage is fiery orange-red; the centre of the back and feathers of the shoulders are glossy orange-brown; a narrow band in front of the forehead, an elongated patch from the beak to the back of the cheek and enclosing the eye, the chin, front of throat, chest, and front of belly, velvety black; the feathers of the wings and tail black, edged with white and pale buff; thighs, vent, and under tail coverts, brownish orange; iris of eye brown; beak black; feet dull flesh coloured.

Female above tawny reddish brown, deepest on the head, each feather broadly centred with black, flights blackish, the inner secondaries with broad tawny-reddish brown borders, the remainder with the outer edges slightly paler; tail-feathers blackish edged and tipped with dull tawny; sides of head pale brown, slightly dusky at base of cheeks and upper portion of

ear-coverts, which also show ill-defined dusky flecks; a broad eyebrow stripe, a few feathers below eye, the eyelids, sides of throat and sometimes the chin more or less defined sulphur yellow; sides of neck breast, sides and flanks tawny buffish with darker streaks; centre of upper throat or of entire throat, of hinder breast, abdomen and under tail-coverts white; wings and tail below slaty-blackish. According to Sharpe and Shelley the tawny buffish parts of the under surface are streaked with blackish-brown and the under tail-coverts are rufous buff (possibly my examples may not be typical); beak fleshy horn-brown, darker on culmen; feet flesh-pink; irides hazel. Male in winter plumage with the wings blacker than in the female. Hab., "Tropical Africa generally, between 17 deg. N. lat. and 18 deg. S. ranging from Senegal into Benguela on the west, and from the Zambesi into Abyssinia in Eastern Africa." (Shelley.)

According to Büttikofer, "the adult males frequent the tops of the canes, where they remain for hours, quite isolated from other birds, and even from their females and young ones, being apparently proud of their brilliant plumage, as they are indefatigable in exposing it in the most obvious manner." Captain Shelley says ("Birds of Africa," Vol. IV., Part 1, p. 105):—"These Bishop Birds are abundant throughout our Gold Coast possessions and in Togoland, where the males assume the bright red plumage for the breeding and rainy season, which lasts from the latter part of April to the end of August. They frequent the more open country, often in flocks, accompanied by *P. franciscana*. Drs. Reichenow and Lühder found them breeding abundantly on the plains of Accra, and with young in August. The nest is of the same oval form as with members of the genus *Hyphantornis*, but is hung singly from the high grass and constructed of fine grass."

On p. 108 we read: "The eggs, generally three in number, are of a pale greenish blue, with or without small reddish brown and greyish brown spots, and measure on an average 0.75 in. by 0.58 in."

Externally the nest may bear some resemblance to those of *Hyphantornis*; but the species of *Pyromelana* build simple domed nests with an opening in front: the species of *Hyphantornis* build nests resembling a snail-shell with the opening below.

According to other authors this is a marsh-loving species, and breeds in solitary pairs in August and September, building its nest in tall grass or thickets. The eggs are said to be three in number, of a verdigris-green colour, spotted at the larger end with purplish black. When not breeding the species flies in dense flocks amongst the reeds and swamps and on the borders of lakes.

When in colour this handsome Weaver fetches a fairly high price, and I have never been fortunate enough to secure a cock bird among those Weavers which I have purchased in their undress uniform. Twice I have secured hens, and in 1907 I purchased what I supposed to be a male out of colour, which promptly died. I believe, however, that the latter is a hen of *P. orix*.

According to Bartlett, "The brilliant colours of the male are assumed by a gradual moult of the whole of the feathers, and after the breeding season they become like the females and young males." But I do not believe this to be the case; indeed, I am satisfied that, as with other species of *Pyromelana*, only those feathers which have to be replaced by long silky plumes are moulted out and that all the others gradually assume the summer colouring, instead of being moulted out. As a similar statement is made in the

British Museum catalogue, it has doubtless been copied from the assertion of some traveller who stated dogmatically what he imagined to be true.

BLACK-VENTED WEAVER (*Pyromelana nigriventris*).

When in full plumage the male is exceedingly beautiful—not unlike a diminutive reproduction of the preceding species; the female, however, is more like that sex of the Orange Weaver, with which it has been confounded, but marked on the upper surface much more nearly as in the Grenadier Weaver; it is also a little smaller than the Orange Bishop, has a shorter beak, the chin and throat pure white, and the under surface generally is whiter, with scarcely a trace of the streaking which is so distinctly noticeable in the female Orange Weaver. Hab., East Africa, between the Zambesi and the Equator, east of 35 deg. E. long. (Shelley.)

In Zanzibar this bird, according to Dr. Stuhlmann, is known to the natives as the "Baniani."

Here Fischer obtained nests and eggs. He describes the former as much resembling that of *P. flammeiceps*, "of a lengthened oval shape with the opening at one side, constructed of coarse grass lined with fine grass, and attached, some five or six feet from the ground, to the reeds or thick covert in marshy places. The eggs in the nest are two, or sometimes three, in number; they are pale blue, occasionally spotted with dusky greyish brown, and their average measurement is 0.68 in. by 0.52 in."

A rarely imported Weaver from Eastern Africa which may occasionally be picked up for a few shillings among mixed consignments of small Weavers out of colour.

I recognised a female of this rare Weaver in one of two hens obtained in 1895 (amongst examples of Napoleon and Orange Weavers out of colour), and which died in November of that year; I therefore hoped that at the change of plumage a male might also be discovered, but up to the present time I have been disappointed. It was bred in Germany in 1882.

GRENADIER WEAVER (*Pyromelana orix*).

The prevailing colour of the male in breeding plumage varies from orange to scarlet, according to age, the old birds being deeper in colour; the feathers of the neck (as in the allied Fire Weavers) can be erected into a kind of swollen ruff when the bird is excited; the mantle and upper wing coverts are cinnamon red with darker shaft-streaks; the crown, sides of head and chin, chest and abdomen black; flights and tail feathers brown, with paler borders; beak black; feet flesh brown; iris chestnut. The female is tawny brown with black shaft-streaks forming tolerably regular continuous narrow lines down the crown; a well-defined yellowish eyebrow streak; under parts pale with darker streaks excepting on throat and abdomen; centre of body yellowish; beak reddish horn-brown, the lower mandible paler; feet brown; iris ashy-brown. Male in winter much like the female, but more heavily marked with black stripes. Hab., Angola and the Limpopo River to the Cape of Good Hope.

Stark ("Birds of South Africa," Vol. I., pp. 127, 128) thus describes the habits of this species:—"The Red Kaffir Pink is seldom found at any great distance from marshy ground or the reed-overgrown borders of vleis or rivers. It appears to be a resident in nearly all the localities in which it occurs, although it may occasionally be driven from a district for a time by drought or want of food. In winter the Bishop Birds collect in flocks sometimes numbering thousands of individuals, and frequently feed in the company of other

Weaver Birds and Finches on seeds and grain. At night they roost in extensive reed-beds or among bushes. Few birds surpass in beauty the male of this species in summer, when he has fully assumed his gorgeous breeding dress of scarlet and velvety black. At this season the cocks may be seen slowly gliding over the reed beds with a curious 'hovering' flight, during which the body is kept very erect, the plumage of the lower back puffed out, while that of the neck is erected into a frill, looking, in the blazing sunshine, like flames of fire slowly drifting to and fro. At times they dance about in front of the females with puffed-out plumes, turning from side to side as if to show off the full beauty of their plumage.

"In the neighbourhood of Cape Town this Bishop Bird builds its nest in August and September; in Natal in November or December, and again in March or April. As a rule these birds nest in colonies, often of great extent, the nests, which are domed and woven out of grass, being attached to the stems of three or four reeds, about four or five feet above the mud or water. The eggs, four or five in number, are somewhat pyriform in shape, and of a uniform pale greenish-blue colour. They average 0.82 by 0.60. The female sits for fourteen days. The young are at first fed on small caterpillars and other insects, including the larvæ of mosquitoes."

Why this common and really lovely bird is not more freely imported than it is one cannot say; possibly the dealers desire to keep up its price. When out of colour it is doubtless sometimes sold cheaply by the smaller dealers, who are unable to distinguish it from the more freely imported kinds.

Being decidedly larger than the well-known Orange Weaver, and quite as combative, this bird should only be associated with species well able to protect themselves. In flight, song, and manner of showing off its brilliant plumage it resembles the common species. Dr. Russ bred a good many broods of Grenadier Weavers.

In September, 1906, Captain Horsburgh sent me a beautiful male of this species, which I turned into one of my smaller aviaries with other Weavers, a pair of Ouzels, and two Doves. In 1907, when it came into colour, it completely dominated the aviary, making itself objectionable to every bird excepting a male Senegal Dove, which it followed everywhere, posturing and singing to it almost incessantly, and attempting to pair up with it. A hen Rufous-necked Weaver in the same aviary was ignored.

ORANGE WEAVER (*Pyromelana franciscana*).

Altogether decidedly smaller than the Grenadier Weaver, the male also differs in its orange chin and throat; the female in the heavier and less regular streaking of the upper parts, and the short, ill-defined eyebrow streak; the flanks are less strongly streaked. In the male when out of colour the black streaks on the crown are narrower and more regular than in the female, and the body below is less strongly streaked. Hab., "Northern Tropical Africa between 22 deg. N. lat. and the Equator." (Shelley.)

I quote the following notes from Captain Shelley's "Birds of Africa," Vol. IV., Part 1, pp. 91, 93, and 94:—"Dr. P. Rendall writes: 'Builds a woven grass nest and lays two or three eggs of a deeper blue than those of our Hedge Sparrow. The nest has a hole in the side, and is built in a tall weed of the pea family—almost invariably.'"

The following is from notes sent to the author by Mr. A. L. Butler:—"I found a pair breeding in a thick Sont-tree near Khartoum, October 20, but the

tree was so thorny that I could not reach the nest. The males in the breeding season are a most beautiful sight, dozens of them collecting together on a small patch of green dhurra. They have a pretty habit of rising and hovering with a jerky flight over the sea of glossy green dhurra blades, with their feathers puffed out until they look like balls of scarlet and black velvet, this action being accompanied with a loud 'purr-purr-r' of the wings. They nearly always puff themselves out in this manner when approaching a female."

I purchased my first pair of this lovely bird about the year 1865, before I possessed any large aviaries. I kept them in a cage about 18 in. in all dimensions. The cock bird seemed dull and listless from the first, and even when in full breeding plumage he took no trouble to chase the hen after the manner of Weavers. Eventually the hen set to work to build a nest, a task which is generally considered to be the duty of the cock; she worked away diligently at it all day, and slept inside it at night. At last, when the work was well-nigh completed, both she and her mate died on the same day, apparently from a slight attack of pneumonia. I purchased a second pair of Orange Weavers (in 1888 or 1889), the cock being then out of colour; these birds amused themselves with playing with bits of hay, twisting them in the wires of the aviary or round the spray millet sticking in the wirework here and there, but never systematically went to work to build a nest. The cock bird, in the breeding season, first sings to the hen, and then chases her vigorously about the aviary; his position when singing, though very effective for the display of his fiery colours, is somewhat absurd; he sits very upright, the neck elongated with all its feathers expanded almost like a ruff, which gives it a puffed-out appearance. The song is peculiar, a jumble of clear and harsh notes, and then "hurrish-rish"—a sound quite metallic as he utters it, and capable of exact imitation if you rapidly draw and close a muslin blind, running with brass rings on a brass rod.

In the autumns of 1894 and 1895 I purchased a good many Weavers out of colour, among which were eight males of this species, one of which built several globular nests in a small bush in 1895, but no eggs were laid. On December 8th, 1899, I found one egg of this species on the earth in an aviary where I had one male with three females; it is a blue egg about the size of a Siskin's, but the colour of a Hedge-Accentor's. In the winter of 1907-8 I left these four birds out in my larger garden aviary, where they roosted outside under the open wire netting during the severest frosts, two of the hens died early in the winter, but the cock, which was in full colour, seemed none the worse.

That Orange Weavers are long-lived will be evident from the fact that up to 1898 I had only lost my first male; others died—three males in 1899 all in colour, one in 1900 in colour, one in 1901 beginning to come into colour, and one in 1902 in colour. Of females which I have preserved I only have three, which died in 1895, 1898, and 1901.

RED-BILLED WEAVER (*Quelea quelea*).

The Red billed Weaver is generally distributed over Africa. The typical form, when in breeding plumage, is very pretty, the forehead, front of face and chin, being occupied by a black mask, which includes the eye; the rest of the head, throat, and breast bright rose colour, shading into brown on the back and whitish on the belly, the feathers of the back are dark brown with paler borders, and the wings and

tail are brown; the beak is lake-red, and the legs are flesh coloured. The female is, as usual, brown, with darker shaft-streaks to the feathers, the flights and tail-feathers brown edged with yellow; cheeks and under parts buffish, centre of body below white; beak waxy ochre yellow. Hab., Africa, south of the Senegal River, the Albert Nyanza, and Lake Nyassa.

Stark says ("Birds of South Africa," Vol. I., p. 123):—"But little has been recorded regarding the habits of this Weaver in a wild state." Ayres remarks that it is "tolerably common in Potchefstroom and the neighbourhood in summer, associating freely with the flights of *Pyromelana oryx* which swarms here. It feeds with them in the open grassy plains and cornfields, principally on small grass-seeds which they pick from the ground."

Of this species I have had a good many pairs, and the cock birds are always at work, during the breeding season, building their cleverly constructed ball-shaped nests, and in the winter pulling them to pieces. When building they will let no other Weaver approach them, but will raise their wings almost over their heads, and use shocking language at the intruders. But when weary of this work, they rest on a branch at a short distance, and any bird may meddle with the nest with impunity, unless it so happens that the working fit comes on again whilst some meddlesome fellow is trying to discover how it is put together, when there is sure to be a charge, a chase, and much chattering, but nothing worse.

Considering how incessantly these birds build in an aviary, it is surprising how unsatisfactory the result of all the labour is. I have only once got as far as eggs, and these were not hatched. From successful experiments made in Germany, it appears that the clutch of blue-green eggs varies from three to seven, and incubation lasts fourteen days.

The variety named after Dr. Russ is a degenerate form of the species, in which the black face-mark is replaced by buff. At its change of colour in 1896 one of my male Red-bills appeared without the black mask, assuming the dress of Russ's Weaver. The bird was probably getting old and weak, for it died after its change in the following year. In 1904 another of my males, which I had possessed for a good many years, assumed an intermediate plumage, in which the black all disappeared with the exception of a broad crescent over the back of the ear-coverts; in 1905 this also vanished, and it became a typical Russ's Weaver; this bird, however, continued to live until the end of April, 1908, when it became ill and was killed by another cock-bird. I therefore regard the incapacity to deposit black pigment in this species as an evidence of a feeble condition of health; some individuals seem to be born thus.

Captain Shelley also told me that he had always doubted the distinctness of the two birds, as he had on several occasions shot both from the same flock. In his work on the Birds of Africa he sinks it as a synonym of *Quelea quelea*; but in his key to the species, describes it as a variety; it is actually nothing so permanent as a variety, being merely an albinistic phase.

RED-HEADED WEAVER (*Quelea erythrops*).

The male differs from the preceding species in having the beak blackish; the entire head and upper half of throat crimson, becoming nearly black on the chin and centre of throat; lower mandible of beak pale; feet reddish brown; irides brown. Female differs from that sex of *Q. quelea* by its beak being dark brown, with paler lower mandible. Hab., Island of St. Thomas, "and ranges from Senegal to the Quanza

River eastward into the Bongo country and the Zanzibar district south from the Tana River." (Shelley.)

In his "Birds of Africa," Vol. IV., Part I., pp. 118, 119, Captain Shelley says:—"In Liberia Mr. Büttikofer found it in company with other small birds in the bushes at Bendo, near Fischerman's Lake, at Schieffelsville, and by the Farmington River, feeding on grass-seeds and visiting the ricefields when the grain was ripening. While I was on the Gold Coast with T. E. Buckley we found the species abundant in the open country near Avera.

"On Prince's Island Dr. Dohrn and Mr. Keulemans saw them in flocks of twenty to eighty individuals, usually in company with *Spermestes cucullatus*.

"The egg is described by Mr. Kuschel as oval in form, olive green with dusky spots and a slight gloss, and measures 0.73 by 0.55."

Dr. Russ says that this species in its entire demeanour, breeding habits, and even in its cry *schak*, resembles the Red-billed Weaver. W. Mieth, of Berlin, first received a number of specimens of this Weaver in 1869, which he had just bought from a ship which had arrived from Africa. The birds were out of colour, but nevertheless, as a newly imported species, were sold at the price of 24 marks for a pair.

It first reached the London Zoological Gardens in 1871, since which time a good many examples have found a home there. Russ says that, in the course of years, he has twice bred this species in his birdroom.

CHAPTER XV.

TYPICAL WEAVERS.

(*Ploceinae*).

Whether these birds have been evolved from the Viduine Weavers, or have descended in an independent line from the Sparrows, it is impossible to say; the greater density of their nests, which are often formed like retorts or inverted snail-shells, seems to separate them rather widely from the Viduine Weavers, and the fact that *Passer arcuatus* not only builds in communities, but constructs a Weaver-like nest, seems to hint at the possibility of their derivation from the Sparrows. I note that in his "Birds of Africa," Captain Shelley places *Passer* and *Petronia* at the end of the *Fringillidae*, and immediately before the *Ploceidae*. Both *Passer* and the *Ploceinae* have the bastard primary well developed as compared with their allies.

SCALY-FRONTED WEAVER (*Sporopipes squamifrons*).

Above ashy-brown; median and greater coverts and bastard-wing black, broadly bordered with white; primary-coverts and flights dark brown, more ashy on outer margins; the secondaries with broad white borders; tail-feathers black, with broad white borders; crown black, with grey brownish margins to the feathers, whiter on forehead; lores and orbital feathers black; sides of head greyish-brown; a white moustachial stripe; chin and a streak on each side of throat black; throat, white; breast, sides, and flanks, buffish; abdomen rather paler; thighs and under tail-coverts, white; under wing-coverts and axillaries, pale grey; flights dusky, dull buffish on inner margins; beak flesh-pink, darker on culmen and at tip; feet pale brown; irides red. Female similar, but smaller. Hab., Southern Africa to the south of the Qanza and Zambesi Rivers (Shelley).

Stark ("Birds of South Africa," Vol. I., pp. 87, 88) says: "These pretty little Weaver birds are very abundant on the banks of the Orange River in small flocks among the bushes and mimosa trees that fringe the

banks of the river. Although they perch freely on bushes, they appear to obtain all their food, consisting of grass seeds and small insects, from the ground. They are active and vivacious little birds, of quarrelsome dispositions, and somewhat noisy when feeding, as they keep up a constant bickering with one another. They are very tame and fearless, frequenting the houses and kraals to feed among the poultry and Sparrows. In winter they generally join the flocks of Waxbills and Finches. The nest is always built in a thorny bush at a height of from three to ten feet. It is an untidy-looking domed structure of irregular shape, artlessly woven out of grass with the stalks left projecting in all directions. The side entrance is concealed either by the bristling stalks of grass, or by a handful of grass placed in the bush in front of it. The interior of the nest is thickly lined, sometimes with feathers, at others with the down of various plants.

"On the Orange River these Weavers build in March and April, on the Limpopo in June and July.

"The eggs, four or five in number, vary in shape and colour; the ground-colour is pale blue-green, this is thickly marked with blotches and scrawls of brown and rufous. The eggs measure about 0.65 by 0.48."

Russ says: "Hitherto this bird has only been once imported, in the possession of Messrs. Linden." He overlooked the fact that it had been exhibited in the London Zoological Society's Gardens; he regarded *Sporopipes* as a genus of Sparrows.

SPECKLED-FRONTED WEAVER (*Sporopipes frontalis*).

Above pale brown; scapulars and wing-coverts with still paler borders; bastard-wing, primary-coverts and flights dark-brown with paler edges, the inner secondaries with whitish-brown borders like the wing-coverts; tail-feathers similar; forehead black with small white tips to the feathers; hind-crown, nape and sides of neck pale cinnamon, the hind-crown with black shaft-streaks; on front of cheeks a moustachial black streak dotted with white; under parts white; breast, sides and flanks pale ashy brown; under wing-coverts pale ashy edged with whitish; flights below dusky with buffish inner edges; beak and feet pale yellowish horn-colour; irides deep brown. Female similar, but smaller. Hab., Senegambia to Abyssinia and southward to Ugo.

I quote the following notes from Shelley's "Birds of Africa," Vol. IV., Part II., pp. 301-2:—"According to Heuglin these Weavers are abundant in North-east Africa to as far north as 17 deg. N. lat., and in the warmer parts of the Abyssinian coast. They were beginning to breed in Bogos in September, and he found the young able to fly when he visited Kordofan in November. The nest is large and oval, generally placed in the centre of a most impenetrable thorn-bush. It is constructed of dry grass, with a small centre chamber well lined with feathers, hair, roots and wool. During the breeding season they live in pairs, and frequent the open country where there are trees for them to nest in, but as autumn sets in they assemble in large flocks, which alight like Sparrows on the roofs of houses or in the stubble-fields and pasture-land, and retire to roost in the high trees near water. Their call-note is a chirp, but their song, though weak, resembles that of our Goldfinch. The eggs, according to Emin, are of a greyish green colour, with darker lengthened blotches, which blotches, Mr. Kuschel informs us, sometimes spread over the whole surface and give them a uniform appearance; they measure on an average 0.64 by 0.48."

"Mr. Jackson . . . writes: 'Found breeding in an acacia. Makes a large nest of dry grass, not unlike that of our common Sparrow.'"

Russ says that this species has been known since Vieillot's time, but is very rare and only imported singly. The first known to him was received by E. Geupel, of Leipzig, in 1871, a dealer who often obtained rare birds from England, and subsequently Guder, of Antwerp, and Hagenbeck occasionally secured single specimens.

In his article in *The Avicultural Magazine*, 1st Ser., Vol. III., p. 126, the late Mr. Erskine Allon says that he has "four pairs of that ridiculous creature the Frontal Grosbeak (*Sporopipes frontalis*). Half Weavers and half Sparrows, they belie their lineage by being of a peaceful disposition; and they sing like Mannikins! Each pair appears inseparable. Eating, drinking, and as nearly as possible flying together, they look like Siamese twins. A row of them gradually elongating their necks simultaneously is an absurd sight."

WHITE-FRONTED WEAVER (*Amblyospiza albifrons*).

Upper surface deep chocolate-brown, becoming almost black on the lower back, wings, and tail; base of the quills white forming a conspicuous speculum; feathers of back, upper tail-coverts and wings with narrow brownish buff margins; forehead white; lores and feathers below eye blackish; throat and fore-chest chocolate-brown like the head, shading into slate-grey with darker shaft-stripes on the breast, abdomen, thighs and under tail-coverts; under wing-coverts and axillaries blackish; flights below blackish-brown with a broad white band across the base of the quills; beak grey, black at base of upper mandible; feet reddish-brown; irides dark brown. Female above dark brown, with darker centres and sandy brownish margins to the feathers; median and greater wing-coverts and secondaries black with reddish-brown margins; bastard wing, primary-coverts and quills blackish-brown with rufous-brown margins; the primaries however with ashy-brown; upper tail coverts with buff fringes; tail-feathers blackish-brown with rufous-brown margins; sides of head rufous-brown, lores and feathers below the eye blackish; cheeks and sides of neck dark brown streaked with white; under surface white, streaked with dark brown; sides and flanks stained with reddish-brown; under wing-coverts and axillaries pale sandy buff; flights below dark brown, dull yellowish along inner webs; beak greenish yellow, dusky at tip of upper mandible; feet and irides dusky. Hab., South-eastern Africa from the Cape to Nyasa-land.

Stark ("Birds of South Africa," Vol. I., pp. 81, 82) says:—"Sir Andrew Smith remarks that it 'inhabits exclusively the forests, and never condescends to visit but the largest trees, hence it is only very partially scattered over the country. The only specimens which have been obtained within the limits of the Cape Colony were discovered in the forests upon the eastern frontier. About Port Natal, however, the bird is not as rare, and specimens are readily to be obtained there at all seasons of the year. It feeds principally upon berries and small fruits.' I have myself only met with this Weaver Bird on the coast of Natal and Zululand, among the tall reeds that border many of the rivers and lagoons. In many such localities it is quite abundant, outnumbering any other species of the family. This species builds among the reeds, and, its thick and clumsy-looking bill notwithstanding, constructs a very neat and beautiful nest, shaped something like a flattened cone with the entrance at the lower edge. This is attached to the stems of two reeds over the water. It is woven with long pieces of coarse grass and strips of reed-leaf without any finer lining. Both birds labour at its construction, the male fetching the

materials and working from the outside whilst hanging by his strong toes head downwards with extended wings, female from the inside. Both male and female keep up an incessant chattering as they pass the end of the grass stem from one to the other through the walls of the nest. These Weavers nest in colonies, and like many other species of the family become very tame during the breeding season, so that one can easily watch them from a distance of a few yards only. Although these birds feed largely upon berries and large forest seeds they also take insects, especially beetles and termites, as well as locusts. The newly-hatched young are fed on soft larvæ and the pulp of berries."

According to Shelley ("Birds of Africa," Vol. IV., Part II., p. 305), "The egg is described by Mr. Kuschel as perfectly oval, without gloss, of a reddish white colour, with ashy violet and brownish red spots, and measuring 1.0 by 0.64."

This species has been exhibited in the London Zoological Gardens.

BLUE-BEAKED WEAVER (*Spermospiza hæmatina*).

Above glossy blue-black; upper tail-coverts slightly washed with dull crimson; throat, breast, and sides bright crimson; abdomen, flanks, thighs, under tail and wing-coverts and axillaries black; beak metallic blue, the tip and edges crimson; feet brownish-black; irides crimson; eyelids dull white. Female, slate-grey; upper tail-coverts dull crimson; bastard-wing, primary-coverts and flights blackish-brown edged with slate-grey; tail black; crown dull crimson becoming slate-grey at back and on nape; sides of head dull crimson; throat, breast, and sides bright crimson; abdomen blackish spotted with white; flanks slate-grey spotted with white; thighs and under tail-coverts dark slate-coloured; under wing-coverts and axillaries slate-grey, spotted with white; flights below dusky, with ashy inner edges; beak, feet, irides and eyelids as in male. Hab., Senegambia to Abeokuta.

The following notes are from Shelley's 'Birds of Africa,' Vol. IV., Part 2, pp. 293-4:—"Mr. Kemp . . . writes: 'It frequents the farms and marshy ground like *Pyrenestes coccineus*, is very wary and as difficult to see as that bird, and like that species apparently breeds here in August and September.' Dr. Büttikofer found its nest in Liberia and remarks that it does not breed in colonies. The nest was placed in the fork of a bush, some four feet from the ground, in the undergrowth of the forest, and was spherical in form, about five inches in diameter, with the entrance near the top, and was constructed of soft grass without any lining, and contained two white eggs, measuring 0.76 by 0.52."

This Weaver has been exhibited at the London Zoological Gardens.

BRIGHT-SPOTTED WEAVER (*Spermospiza guttata*).

Differs from the preceding species in the upper tail-coverts being of the same bright crimson as the throat; sides of head, below the eye, bright crimson or washed with crimson; upper mandible with broad orange-red edges; feet black with yellow soles; irides red. Female differs from that sex of *S. hæmatina* in the absence of red on front of crown; the crimson of upper tail-coverts and sides of head bright like that of the throat; tail-feathers slightly edged with dull crimson; beak dark metallic blue, with red edges; feet black with yellow soles; irides red, eyelids white. Hab., Camaroon to the Congo.

Captain Shelley ("Birds of Africa," Vol. IV., Part II.,

p. 295) publishes the following field-notes:—"According to Dr. Reichenow the species is abundant in Camarouns. Near the coast, at Bihndi, Mr. Sjöstedt met with it singly or in pairs amongst the thick grass interspersed with bushes and stunted trees, on the summits of which it would perch, but never saw it frequenting the higher trees." Mr. G. L. Bates, who procured two full-plumaged males in the middle of June at Efulen, writes: "All the Weaver Finches that I have seen are confined to the clearings, unless it be the black red-breasted 'Edumvin' (*Spermospiza guttata*), which I have seen building in high trees in the forest."

Kuschel appears to have described the egg, but Captain Shelley does not tell us what it is like.

This beautiful bird has also been exhibited at the London Zoological Gardens more than once: in 1894 four specimens were purchased. In the Zoological Society's List, Mashonaland is given as the locality of the species, but this is not confirmed by Shelley and therefore is probably an error.

WHITE-BILLED BUFFALO WEAVER * (*Textor albirostris*).

Black; browner on under surface of flights and tail; primaries partly white-edged; beak black, the basal portion in adult birds covered with a pale yellow fleshy cere; feet pale slate-colour; irides brown. Female slightly smaller and browner than male. Hab., N.E. Africa from 16 deg. N. lat. to the Equator.

According to Jackson, the nest is a large mass of black thorns, three or four nests being clustered together; all with three eggs. The following, also, I take from Shelley's "Birds of Africa," Vol. IV., Part II., pp. 315, 316:—"The Nile district and Abyssinia I look upon as the true home of the species; but here, according to Brehm, it is not very common and was not met with further north than 16 deg. N. lat., and he informs us that it breeds in colonies of from three to eighteen nests, each 3 or 4 feet in diameter, including the surrounding structure of thorny twigs and small branches, loosely arranged, giving the structure the appearance of a thick bristly bush; on one side, usually to the westward, is the entrance, which at the mouth is wide enough to admit a man's fist quite easily, but gradually diminishes to just sufficient size to allow the bird to pass. The interior of each nest is lined with fine rootlets and grass. During the nesting season these birds are exceedingly noisy and may be heard at a great distance, and he writes: 'During a few minutes I spent under a tree I wrote down the following sounds. One of the male birds began: *Ti, ti, terr, terr, terr, zerr, zaili*; another *Guk, guk, zai*; a third uttered the sounds, *Guik, guik, guk, guk, gai*; others screamed, *Gu, gu, gu, gu, gai*, and a few listened intently. They behaved like a swarm of bees. Some came, others went, and it seemed almost as if all the grown fledglings had also collected on the tree, for the large number of birds did not correspond to the few nests. The flight is very easy and hovering, marked by slow flappings of the wings. The wings are carried very high. Its run is quick and nimble, and the bird is also an adept in climbing.'

According to Heuglin the nests "contain three or four eggs, coloured like those of our House-Sparrow, of a blunt oval shape and with a rather thick rough shell. They measure on an average 1.2 by 0.8."

This species feeds upon pastures in company with Glossy Starlings. It has been exhibited at the London Zoological Gardens.

CHESTNUT-BACKED WEAVER

(*Cinnamopteryx castaneofusca*).

Male above chestnut with black bases to the feathers,

showing most prominently on the scapulars; upper tail-coverts, wings, and tail, black; head all round and breast black as well as the under surface of the wings and tail; remainder of under surface chestnut; beak black; feet and irides brown. Female above brown; mantle streaked with black; lower back and rump rufescent; upper tail-coverts similar but darker; wings blackish; median and greater coverts with whitish-brown edges, the latter and the primaries slightly olivaceous; crown of head similar; lores and sides of face sandy brown; under surface greenish yellow becoming sulphur yellow at middle of breast and abdomen; chest, sides, thighs, and under tail-coverts tawny buff; beak brown, fleshy on lower mandible; feet brown; irides brown. Hab., Senegambia to the Congo.

The following notes are from Shelley's "Birds of Africa," Vol. IV., Part II., pp. 357-8:—"According to Dr. Büttikofer the species is common throughout Liberia, frequenting the neighbourhood of human habitations in preference to the deep forests. In habits it resembles *Hyphantornis cucullatus*, but apparently prefers less elevated breeding places, such as reed-jungles, where they attach their nests to the tops of one or two of the shafts. One December evening, at Robertsport, his attention was attracted by an unusual noise, caused by a great number of these birds flying to and fro, 'talking palaver,' as his boy aptly suggested; for early next morning a cloud of them came and took possession of the tree and immediately began constructing their hanging nests, and continued actively at work the whole day, and by sunset he counted fifty-four of their nests apparently finished, when the birds flew off together to roost elsewhere. The following morning, soon after they had come back, he heard again a great chattering, and he saw the birds examining the nests from all sides, and then, as if by a signal, they all took flight together to a cane-grove on the other side of the station, where they immediately commenced building other nests, which they fastened to the tops of the canes from 8 to 12 feet from the ground. A few days after they had laid their eggs, two to three in number, and he never again saw these birds return to the tree where they had first commenced building, having, he suggests, possibly been scared away from the tree by a colony of ants or a snake they may have discovered among the boughs. The eggs were uniform bluish green."

Mr. Boyd Alexander obtained the species at Pong, and writes: "Breeds in May. The nests, constructed of coarse grass-blades and lined with fresh leaves, are suspended underneath the fronds of the palm-trees in damp situations. A large number may be found together. Both males and females share in the incubation."

Russ says (1879):—"Up to a short time ago the Fox-Weaver was one of the very rarest birds to be seen in the market; now it is occasionally imported, yet one cannot regard it on any account as one of the commonest birds. The females only occasionally come to hand and therefore one finds true pairs of this species in few collections." He notes that the price is from 24 to 30 marks for a pair. It has been exhibited at the London Zoological Gardens, but I have never seen it in any English bird-shop.

SHORT-WINGED WEAVER (*Hyphanturgus brachypterus*).*

Above olive-yellow; rump and upper tail-coverts brighter; wings dark brown, the feathers edged with olive-yellow; tail-feathers dull olive-yellow, with brighter edges; head orange-yellow, more olive on back of neck; lores and a broad streak through the eye

* Also called the Ox-Bird.

* Dr. Sharpe places this species in the genus *Sitagra*.

black; eyelid, base of cheeks and throat black, the latter bounded by an orange suffusion which extends on to the fore-neck; remainder of under surface bright yellow, more olive on sides and flanks; under wing-coverts and axillaries with greyish bases; quills below ashy with whitish inner edges; beak black; feet slaty grey; irides yellowish-brown. Female differs in the olive-yellow extending over the crown to the forehead and the throat being yellow of a paler colour than the breast; beak black; feet pale bluish grey; irides pale stone-colour. Hab., Senegambia to Gaboon.

Captain Shelley publishes the following field-notes ("Birds of Africa," Vol. IV., Part 2, pp. 390, 391):—"The nest, according to Dr. Reichenow, is suspended at a short distance from the ground to a twig or the leaf of a young palm, is oval, with a long entrance passage hanging down of some 7.5 inches long, and the body of the nest measured 4.75 by 3.25. Dr. Reichenow found a nest on November 14th, in Liberia, containing two eggs of a dirty white, sprinkled all over, especially at the thicker end, with reddish brown. The nest was most solidly and artistically constructed of long elastic fibres and was hung at a height of some eight feet from the ground."

"Mr. Kemp found the species common at Rotifunk and Bo, and writes: 'They were much lighter sleepers than *Spermestes cucullatus* and *S. fringilloides*, who roosted in an adjoining tree, and when aroused at night the flutter of their wings against the leaves made a noise like a waterfall. A palm tree in the station yard bore considerably more than a hundred of their nests and was the scene of great excitement in the mornings and evenings. During and after the rains these Weavers assemble sometimes in quite large flocks and fly together after the manner of Starlings, turning and twisting in the air, changing from yellow to green as their breasts or backs become most exposed to view.'

Russ says that this Weaver has only been imported extremely rarely by Hagenbeck, Guderer, and Jannach; it has, however, been in evidence several times at the Berlin Aquarium and the Berlin Zoological Gardens. It has also been exhibited more than once in the London Zoological Gardens.

MASKED WEAVER (*Sitagra monacha*).

General colour above olive-yellow, more orange on back of crown and nape; rump and upper tail-coverts brighter yellow; scapulars with blackish centres; wing-coverts and inner secondaries similar, but with narrower yellow margins; tail-feathers pale greenish-brown edged externally with olive-yellow and internally with pale yellow; crown yellow with the forehead broadly black; sides of head and throat black; sides of neck and remainder of under surface bright golden yellow; flights below dusky, with yellow inner edges; beak black; feet greyish brown; irides brown. Female without black on head, which is golden yellow like the under surface; hind crown and nape olive yellow like the back. Hab., Gold Coast to the Congo.

Captain Shelley observes ("Birds of Africa," Vol. IV., Part 2, pp. 396, 397):—"When I was on the Gold Coast I found the species well known there as the Palm-birds, and the nests, I believe, of this species were suspended from beneath the leaves of the coconut palms, as many as four or five hanging from one frond. These nests were oval with a short entrance passage, and were slenderly but strongly built, apparently of shreds of the palm leaves, and were of a pale brownish buff, so they may have been built the previous year."

"In Camaroons Dr. Reichenow found these Weavers plentiful at Wuri along the river bank, suspending their nests from twigs or grass-stalks overhanging the water, and Mr. Sjöstedt found them also in abundance at Bibundi, avoiding the thick bush, and he took a nest in August containing two pure white eggs. The eggs measure 0.7 by 0.52."

The London Zoological Gardens appear to have possessed a fair number of specimens of this Weaver; but, in the Society's list, *Abyssinia* is given as the locality (which is not probable) and *personata* Vieillot—a synonym of *S. luteola*—as the name. As *S. luteola* is also entered in the list on another page it is probable that the Masked Weavers which are recorded were West African birds and represented *S. monacha*.

YELLOWISH WEAVER (*Sitagra luteola*).

Nearly related to the preceding, but with less black on the front of the crown; the hind-crown and nape olive-yellowish, the upper parts with faint dusky centres to the feathers, the median and greater wing-coverts bordered with pale yellow or white, as also the inner secondaries; beak black; feet horn brownish; irides burnt-sienna. Female with no black in the plumage; above mostly ashy brown, washed with yellow on the forehead, crown, back of neck, rump and upper tail-coverts; the mantle with dusky centres to the feathers; eyebrow, sides of head and throat pale yellow; breast white mottled with yellow; under tail-coverts pale yellow; beak blackish. Hab., Senegambia to the Red Sea and southward to Kavirondo. (Shelley.)

The following note on the habits is from Shelley's "Birds of Africa," Vol. IV., Part 2, p. 398:—"Mr. Jesse found these Weavers breeding early in August. The nest was oval with a long tubular entrance, and contained two white eggs. According to Henghin they assume their bright plumage in May, commence breeding about the middle of July, and the young are able to fly in October and November. They live mostly in pairs, usually frequenting the water-courses in wooded districts, avoiding the more desert parts. The nest is small, of an elongated oval form, lightly constructed of shreds of leaves or bark, with a little hair or cotton for a lining, and is suspended from the twigs, generally of an acacia tree, at some twenty feet from the ground. The eggs, two or three in number, are pure white, measuring 0.68 by 0.48."

Dr. Russ speaks of this bird as quite a rarity in captivity, yet he succeeded in securing it for his bird-room, where it constructed several nests. I have seen it exhibited more than once at bird-shows, and our London Zoological Society has had a good many specimens. I know that the late Mr. Abrahams used to receive it, and I have seen it once or twice in other bird-shops, so that in England it can be no great rarity.

OLIVE WEAVER (*Sitagra capensis*).

General colour of male above olive-yellow, the back streaked with brown; wings brown, the feathers edged with olive-yellow; tail olive-brown, the feathers edged with yellow; head golden yellow; under surface bright yellow, the throat tinged with olive; axillaries and under wing-coverts ashy-brown; margin of wing yellow; beak black; feet flesh-coloured; irides light red. Female duller, the head coloured like the back; cheeks and under surface olive-yellow, washed here and there with brighter yellow; beak brown; irides hazel. Hab., Western Cape Colony, northward to the Orange River, and eastward to Algoa Bay.

Dr. Stark ("Birds of South Africa," Vol. I., pp. 69-70) gives the following account of the wild life:—"This

large and robustly-built species is very generally distributed, in flocks of from ten to fifty or sixty individuals, over Western Cape Colony, and although it shows a certain preference for the neighbourhood of vleis and marshy ground, it is also found in very arid localities at a considerable distance from the nearest water. Its flight is rather heavy and undulating. The Cape Weaver feeds to a considerable extent upon seed and grain, but at times upon insects. It is also fond of sipping the saccharine juices of the Cape aloe and of various proteas, and individuals may be sometimes met with with their frontal feathers stained and matted together with the mingled nectar and pollen of these plants. They build their large kidney-shaped nests in colonies, frequently suspending them from the boughs of a tree overhanging water, but just as often over dry ground. If unmolested they prefer a tree standing close to a house as a nesting site.

"The nests are compactly woven with coarse grass or strips of reeds and sedge, the interior being warmly lined with fine grass-stems as well as the flowering tops. The entrance to the nest is from below, a narrow bar at the inner extremity dividing it from the interior and preventing the eggs from falling out in windy weather. The eggs, four or five in number, are of a uniform deep blue. They measure 0.90 by 0.66."

This is a fairly well-known cage-bird, which has been exhibited several times at the Zoological Gardens, and I think also at various bird shows. I have seen it in the shop of the late Mr. J. Abrahams in small numbers. Dr. Russ, in his great work, confounds it with the preceding species.

RUFIOUS-NECKED WEAVER (*Hyphantornis cucullatus*).

The male in breeding plumage is slightly larger than the Black-headed Weaver, from which it may readily be distinguished by the black on the crown not extending back to the nape, but replaced there by a belt of chestnut which forms a complete collar bounding the black mask, also by a broad black band down each side of the mantle which unites on the lower back. The female above is greyish-brown streaked with darker brown; the wing-coverts edged with greenish yellow, other wing feathers and tail feathers edged with brighter yellow; top of head greenish yellow; a clear yellow eyebrow streak, as also the sides of the face and the throat; abdomen white in the centre with a faint tinge of yellow; sides of body brownish; beak and feet horn-brown; eyes blackish brown. Hab., Senegambia to Gaboon.

Captain Shelley thus describes the wild life ("Birds of Africa," Vol. IV., Part II., p. 425):—"The males assume their full plumage within the first twelve months, and never lose it afterwards. They have a loud, shrill note, are very active and gregarious, breeding in colonies and generally selecting for that purpose the large trees in towns or villages, apparently appreciating the protection thus afforded them against snakes and monkeys, which are no doubt their worst enemies during the breeding season. The nest is of a rounded form, with a short side-entrance passage hanging down, and is constructed of grass and shreds of the leaves generally of the banana or palm tree, is carefully and solidly woven, and strongly attached to the twigs from which it hangs, and the lining of the nests I examined at Cape Coast consisted of soft dry grass and a few feathers. According to Dr. Büttikofer, the eggs are two or occasionally three in number, of a pale green colour, sparsely freckled with brown, and measure 0.9 by 0.6."

Captain Shelley continues as follows:—"They show little fear of man, and are hardy, interesting cage-birds, weaving on to the bars of their cage any string, grass, or suitable materials they are supplied with, regardless of the season of the year. A male which I have now had in a cage for over twelve years I have fed upon seeds, but it will eat almost anything, and is especially fond of grasshoppers, and will take all kinds of insect food."

Some years ago Lieutenant Horsbrugh wrote to me that what he believed to be this species was the most abundant bird about Cape Coast, and he described a single tree which contained from eight to ten thousand nests. Is it not wonderful that these common birds are so little imported that even Dr. Russ can only speak of a female in a friend's collection which he believes to be referable to this species. But I believe that this is only true of the German bird market, for I have seen a good many in England; unless I am much mistaken, a hen given to me some years ago by Mr. Allen Silver belongs to this species.

I purchased a male of this species for a few shillings about 1893, and turned it into my Java-Sparrow aviary, where it built some wonderful nests, similar to those of the preceding species; it, however, was very quarrelsome and aggressive, so that eventually I removed it to the next aviary, in which I had some Cowbirds. These appeared to have injured one of its feet, and it became dull, miserable, and sluggish. In the winter of 1894-5 it died.

Dr. Russ, who apparently never possessed this Weaver, confounded it with its near relative, *H. abyssinicus*, applying to it the synonymic name of *H. larvatus*.

BLACK-HEADED WEAVER (*Hyphantornis melanocephalus*).

The male in breeding plumage has the head to the nape and throat black bordered with yellow behind and with chestnut on the throat, remainder of upper surface greenish yellow, brightest on the rump; median wing-coverts blackish tipped with yellow; outer coverts brown with pale edges; flights deep brown edged with yellow; tail-feathers orange-brown edged with yellow; under surface bright yellow; beak blackish-brown, feet flesh coloured, iris chestnut.

The female, though much like the male in winter plumage, is not at all like it in full breeding plumage; it is dark yellowish green above, the crown, shoulders, and back brownish, each feather with a broad dull yellow transverse bar; eyebrow stripe and sides of head clear yellow; under surface brighter yellow; beak black-brown; feet flesh coloured; iris brown. The male in winter plumage is larger than the female, and has a wash of grey on the cheeks, and its mantle is of a more rufous shade; beak ashy-grey, shading into slate colour on the upper part; feet flesh-pink. Hab., Senegambia.

Shelley ("Birds of Africa," Vol. IV., Part II., p. 440) says:—"Dr. P. Rendall writes . . . :—'This bird, which more frequently is to be seen than any other member of the family, prefers the lower branches of the mimosa, common in the marshy ground between the mangrove swamps; and though it also builds in colonies, I have seldom seen more than two nests on a single tree; they were usually about six or seven feet from the ground level. Their eggs, which present every variation in colour between olive-green and russet-brown, are seldom in clutches of more than two, though once or twice I have taken three from a nest.'"

I purchased several of these birds out of colour in 1895, one of which assumed a full male plumage in 1896, and a second in 1898; the remainder were evidently hens. The species has been bred in Germany, and could, I am certain, be easily bred here if a male and two or three females were kept apart in a small aviary, for they are as crazy to build and as quarrelsome when building as the Red-billed Weaver—a bundle of hay will set them to work at once. The nest is like a huge snail-shell with the opening directed downwards. I have at times had the wire netting at the top of my Weaver aviary adorned with several of these clever structures, and never could understand how the birds could manage to weave the top of the nest on to the wire; probably after the end is passed through it is doubled down and held by the claws until the beak has seized it again. The sitting consists of from three to five eggs, and incubation lasts fourteen days.

The German price for this bird is tolerably high, and possibly, when in full colour, it may not be cheap in England; but I bought mine at the same rate as Napoleon and Orange Weavers, all out of colour.

HALF-MASKED WEAVER (*Hyphantornis vitellinus*).

The male bird in breeding plumage is bright golden-yellow, somewhat olivaceous and with dusky streaks on the back; wing-feathers, black edged with yellow; tail feathers, pale brown, with yellow edges; crown of head, chestnut to the middle; a black mask, including the lores, eye, front of ear coverts and sides of face, as well as the chin and front of throat; remainder of throat washed with orange; beak black; feet brownish flesh-coloured; iris, according to Von Heuglin pale brown, according to Dr. Russ fiery red.

The female above is pale yellowish olive-brown; the mantle and shoulders with broad brown shaft streaks, the abdomen and vent nearly pure white; the remainder of the body more or less yellow, but duller and paler than in the male; beak dark-horn brown, under mandible paler, feet flesh-brown; iris orange.

The male in winter plumage is a good deal like the female, but larger, with a richer yellower tone on the under parts and the back greener with narrower shaft-streaks; the head and throat, at any rate in fully adult birds, more or less mottled with black and yellow. Hab., from 18 deg. N. lat. southward to the Ulu Highlands, 2 deg. S. lat. (Shelley.)

Captain Shelley publishes the following field-notes ("Birds of Africa," Vol. IV., Part II., p. 444):—"The Drs. Reichenow and Lühder found these Weavers breeding both at Accra and at Ahokobi, with fresh eggs in the middle of August. The nests were hung from bushes at five to eight feet from the ground, one or more being suspended from the same bough, but were not in large colonies. The nests were of the usual oval form, with the entrance-tube hanging down. The eggs, bluish white with pale reddish blue or violet markings, measure 0.8 by 0.6."

"In North-east Africa Heuglin met with these birds in small flocks from May to July, at Berbera and up the White and Blue Niles. Their favourite resorts were small groups of acacia and other thorny trees in damp situations, on islands, and in the maize-fields. They were feeding on grain and insects, and their call note was a shrill chirp. The males moult into their bright breeding plumage in June. The nest is woven out of fresh, green grass, and suspended from a twig at a height from the ground varying from three to twenty feet; many of these nests were empty, and apparently used only as shelters for the males. The eggs vary

greatly in colouring, from whitish to clay-colour or bluish-green, some having only dusky bluish-grey dots and freckles, while others are thickly spotted with reddish-brown. He never found more than five eggs in a nest, and in their second brood there were generally only three. . . . When the young are able to fly they assemble in flocks in the open country and maize-fields, and wander southward in November."

Dr. Russ observes that this is rightly the most beloved of the foregoing large Weavers, since it is not only harmless and peaceable in the bird-room, and one of the most beautiful of all Weavers, but also is easily and plentifully bred, and constructs an extraordinarily artistic nest. This is somewhat fulsome praise, for the bird is just about as quarrelsome as other members of its genus, and its nest is of much the same type. Neither is it, in my opinion, far superior in point of beauty, the distribution of colours being very similar. Some allowance must, however, be made for the fact that the worthy doctor bred the species freely in his bird-room. The clutch of eggs numbers three to four, lighter or darker bluish-white, spotted with reddish or violet. Incubation lasts twelve days. The song is extremely harsh, but the bird is immensely proud of it. Owing, perhaps, to the fact that many of the London dealers do not recognise this bird (especially in its winter dress), it is generally obtainable for a few shillings. In Germany it appears to cost from twelve to fifteen shillings for a pair. It is imported from time to time in a few heads amongst consignments of mixed Weavers.

BLACK-FRONTED WEAVER (*Hyphantornis velatus*).

General colour above olive-yellow, the back indistinctly streaked with brown; the scapulars streaked with black; wings brown; median coverts tipped and the flights edged with yellow; tail olive-brown, with yellow edges to the feathers; crown and sides of neck yellow; forehead, sides of head and throat black; remainder of under-surface yellow; axillaries white with a tinge of yellow; under wing-coverts grey; edge of wing yellow; flights below dusky, with yellow inner edges; beak black; feet flesh-colour; irides orange-red. Male in winter above greyish-brown streaked with dark brown; rump and upper tail-coverts olive-yellow; lesser wing-coverts olive-yellow, brown at base; remainder of the wing-feathers brown with yellow or olive margins; median coverts with pale yellow tips; tail olive-brown, with a wash of yellow; crown and nape tinged with olive-yellow; sides of head olive-brown with a yellowish tinge; a faint yellowish eyebrow; lores dusky; cheeks and throat yellowish-white; breast, sides, and flanks pale yellowish-brown; centre of abdomen white; under tail-coverts sandy-yellowish; axillaries and under wing-coverts pale yellow; edge of wing brighter yellow; beak dark brown; feet dark flesh-colour; irides pale brown. Female differs from the winter plumage of the male in the greyish-brown colour of the lower back, rump, and upper tail-coverts. Hab., South-West Africa from Benguela to Cape Colony.

Captain Shelley separates this from *H. mariquensis*, but admits that it is "an extremely nearly allied form." Stark treats it merely as a local form of the species which ranges from Cape Colony over Southern and Eastern South Africa, south of the Limpopo River. Of the habits of the latter he writes ("Birds of South Africa," Vol. I., pp. 59, 60).—"These Weaver birds are gregarious at all seasons of the year, and in summer frequently form very large breeding colonies, often consisting of several hundred pairs of birds. Frequently they commence building their kidney-shaped nests very

early in the spring, towards the end of July or beginning of August, when many of the males still retain their immature or winter dress; but the nests are not completed, or the eggs laid, as a rule, until the beginning of November.

"As a breeding-place these birds prefer reed-beds, if any are available, but should there be none, they suspend their nests from trees and bushes overhanging water, or occasionally over dry ground. When built among reeds, the nests are usually attached to two stems by the sides; but when in trees they are suspended from the drooping twigs. Like most of the Weaver birds, this species becomes very tame during the breeding season, and it is a pleasing sight to watch the busy birds as they are engaged in constructing their ingeniously-formed nests. They work with the greatest energy, the male fetching the long green grass-stems out of which the nests are woven, and usually assisting from the outside by passing one end through to the female inside the nest, she passing it back again, and so on. Whilst engaged in this work the birds frequently hang back downwards with extended wings, swaying gently to and fro, and all the time keeping up a ceaseless chattering.

"In districts where the *Sansevieria* grows the nests of the Masked Weaver-Birds are often constructed entirely of the marginal fibres of this plant.

"The entrance to the nest is from below, the nest itself being shaped like a retort without a neck, or the shell of a garden snail. Although this species subsists largely on grain and grass-seed during winter, it feeds freely on insects during summer. The young are fed on soft larvæ, caterpillars and small grasshoppers. They remain in the nest for about thirty days.

"The eggs of this Weaver, usually three in number, vary remarkably in colour, even in the same nest. They are of some shade of white, cream-colour, pink, green, or blue; often unspotted, but more frequently marked, more or less thickly, with small spots and dots of various shades of red and brown; less often they are blotched and clouded heavily with large masses of the same colours. They are somewhat elongated in shape, and average 0.93 by 0.58."

Dr. Russ does not appear to discriminate between this and other species of *Hyphantornis*; he says they are separated by scientists, but are probably only local races, and their differences are of no importance to the aviculturist. Why the aviculturist should not be accurate as well as the systematist I fail to see. This species has been exhibited and even bred in the London Zoological Gardens.

EYEBROWED WEAVER (*Hyphantornis superciliosus*).*

General colouring above yellowish olive, with blackish centres to the feathers; wings and tail dark brown, with narrow pale margins to the feathers; crown yellow, washed with chestnut on the forehead; sides of head, chin and centre of throat black; breast orange-yellow in front, more golden behind; abdomen, thighs and under tail-coverts sandy buff; upper mandible horn-black, lower blue-grey; feet brownish-flesh; irides brown. Male in winter above sandy brown, deepening to dull black on the crown; mantle with blackish centres to the feathers; wings and tail with the pale edges broader; sides of head and a broad eyebrow-stripe reddish buff, the latter separated by a black stripe passing through the eye; throat, sides of neck, body below and under tail-coverts reddish buff; centre

of breast white. Female differs from the male in having the forehead and crown black, some of the feathers tipped with olive-yellow; sides of forehead chestnut passing into a broad golden yellow eyebrow-stripe; the yellow of the upper neck partly spreading over the ear-coverts; soft parts as in the male. Hab., Liberia to the Congo and eastward to the Upper White Nile. (Shelley.)

Nothing appears to have been recorded respecting the wild life of this species.

This Weaver was purchased by the London Zoological Society in 1884 and exhibited in the Gardens; it appears, however, to be very rarely imported.

BAYA WEAVER (*Ploceus baya*).

When in breeding plumage the male is mostly brown above, with black or dark shaft streaks; the mantle, however, is yellow; the lower back is uniformly brown and the upper tail-coverts are yellow; the crown of the head, sides of neck and breast are bright golden yellow; the base of the forehead and a mark extending above the eye and over the ear-coverts, cheeks, chin and throat blackish-brown, varying to pale brown on the throat; abdomen white, pale brown, with darker shafts to the feathers at the sides; beak, dark horn-brown; feet flesh-coloured; iris, dark brown.

The female is altogether browner, has no black mask but a pale eyebrow streak; the crown of the head brown streaked with black like the back, the throat and chin buffish white; the breast and sides of body below ochreous buff; otherwise, excepting in its paler beak, it is not unlike the male. Hab., the greater part of India and Ceylon.

The wild life of the Baya and its allies has been thoroughly studied; the nests, which are somewhat purse-like when built on trees, are usually suspended from the fronds of some lofty palm-tree, thirty or forty nests being sometimes seen attached to a single tree; at other times they are hung from the thatch of a bungalow, whilst in Ceylon they have been observed in branching trees. The eggs are usually two in number and pure white; but as many as six or even eight have been taken from one nest, being perhaps the produce of more than one hen.

In captivity the Baya is always ready to build if grass or hay is supplied to it: the nest is extremely closely and firmly constructed, the walls being of such thickness that very little light can possibly penetrate to the egg-cavity. As I never possessed hens of this species the nests built in my aviaries were never completed, the male bird being apparently unable to form the cup to contain the eggs without the assistance of the female; if completed it is easy to see that they would somewhat resemble those of the genus *Hyphantornis*, excepting that the upper portion (or roof of the nest) is carried in conical tapering fashion to the branch from which it is suspended, giving it externally a more purse-shaped character. The entrance is from below, and the bird after entering comes immediately upon a stout, transverse perch of plaited substance which divides the entrance from the cup; in unfinished nests this perch naturally has an opening on both sides of it.

The Baya is not only extremely quarrelsome when nesting, but is an arrant thief; it also certainly not only plunders materials from the nests of other and weaker birds, but sometimes picks to pieces and eats their newly-hatched young. Yet Dr. Russ states that he found it altogether peaceable. Possibly, as he had eighteen examples of four races—the Baya, Manyah, Bengal, and Yellow-bellied Weavers—together in the

* Shelley has founded a new genus—*Pachyphantes*—for this species, on account of its stout beak, but the beaks of *Hyphantornis* are not all cast in one mould.

same aviary, one may have kept another in check. The experience of one aviculturist is never quite conclusive as a guide on which to base one's faith in the harmlessness of any species.

In my "Foreign Finches in Captivity" I mention having had five males of this species; two of these, however, proved to belong to the nearly-related *P. manyah*. I believe I purchased these birds from one consignment about 1892, and I got rid of the Manyah Weavers in 1898; one Baya Weaver lived a year or two longer.

Two Weavers have been separated from the above—*P. atrigula* and *P. mcgarhynchus*—but Mr. Finn observes (*The Avicultural Magazine*, 1st ser., Vol. VI., p. 146). "No doubt there is a certain amount of intergradation between them, similar to that which occurs between *P. atrigula* and *P. baya*," in which case they must be what are nowadays called subspecies. I will therefore merely quote Mr. Finn's characters for distinguishing them.

BLACK-THROATED WEAVER (*Ploceus atrigula*).

Larger than *P. baya*; "throat dull blackish; breast buff." Hab., Lower Himalayas to Assam, and from the neighbourhood of Calcutta through Burma and the Malayan Peninsula to Sumatra and Java (Sharpe).

I believe the Zoological Society of London acquired four examples of this form in 1900.

GREAT-BILLED WEAVER (*Ploceus mcgarhynchus*).

"Size largest; entire under-surface yellow" (F. Finn). Hab., Terai (Hume).

The Zoological Society of London acquired a specimen of this bird in 1901.

BENGAL WEAVER (*Ploceus bengalensis*).

The male is "similar to *P. baya*, but differing in the total absence of yellow on the breast, and by the black band across the chest; the throat sooty blackish" (Sharpe); "bill pearly white; legs flesh-colour; iris light brown" (Oates). Male in winter with "a more tawny-buff tinge below, the black breast-band entirely obscured by sandy buff edges to the feathers; "upper mandible dusky brown, the lower one pale lavender; feet brownish fleshy pink; iris brown" (*A. O. H.*). Female "having the black band across the chest less strongly developed, and the yellow of the eyebrow and sides of neck not quite so bright; "upper mandible light brown, the lower one whitish horny, with a pinkish-bluish tinge; feet fleshy pink; iris brown" (*A. O. H.*)—Sharpe. Hab., the greater part of India and ranging into Burma.

Jerdon ("Birds of India," Vol. II., p. 350) observes:—"I found it abundant near Purneah, also in Dacca, building in low bushes, in a grassy churr overflowed during the rains. The nest was non-pensile, and had either no tubular entrance or a very short one, made of grass, and more slightly interwoven than either of the others. Though a good many pairs were breeding in the neighbourhood, the nests were, in no instance, close to each other, rarely indeed two on the same bush."

In Hume's "Nests and Eggs of Indian Birds," 2nd ed., Vol. II., pp. 120, 121, we read: "Mr. Henry Wendon has sent me the following note:—On 28th August I found some eight or ten nests of this bird at Bhandoop, sixteen miles from Bombay, in a space of marshy land (water 6 to 18 inches deep), surrounded by rice-fields. They were built on that kind of grass which looks so like young sugar-cane, the blades of which were bent down and woven into the nest. In one case a nest was

supported by only four blades, in another by ten or twelve. The tops of the nests were as globular as the entrance of the several blades of grass would permit of their being. None had pensile supports, and I noticed no entrance-tube of more than 2½ inches in length. Two nests each contained three eggs, one clutch being fresh and the other well incubated; another nest had one egg.

"As regards material and the way it is woven, the nests are similar to those of *P. baya*; nor can I perceive any difference in size, colour, or shape of the eggs, unless it be that those of *P. bengalensis* are slightly more pointed at the smaller end." This species has been exhibited at the London Zoological Gardens.

MANYAH WEAVER (*Ploceus manyah*).

Male, "similar to *P. baya*, but without the yellow on the breast; the fore neck and breast, as well as the sides of the body, tawny rufous or yellowish buff, these parts all forcibly streaked with broad, black centres to the feathers; the throat sooty blackish, like the sides of face and ear-coverts; nape and hind neck tawny brown streaked with black like the back." Female, "general colour above ashy brown, broadly streaked with black, the feathers of the mantle and scapulars margined with tawny buff; bastard-wing, primary-coverts, quills and tail-feathers blackish, margined with olive-yellow; crown of head like the back, but less distinctly streaked; lores dusky; eyebrow white tinged with yellow, extending in a streak behind the ear-coverts; sides of face and ear-coverts sooty blackish; cheeks and under-surface of body white, with a yellow tinge on the breast; the fore neck, breast, sides of body, and flanks distinctly streaked with black, more broadly on the latter; thighs white, also streaked with black; under tail-coverts buffy white; under wing-coverts tawny buff; quills below dusky, ashy rufous along the inner edge; bill brown above, darkening on the culmen towards the tip, pale yellowish flesh-colour below; feet flesh-colour; iris dark brown" (E. A. Butler). Adult in winter, "resembles the plumage of the adult female, but always much more tawny, especially on the fore neck and breast, which are both strongly streaked with black centres to the feathers, the throat ashy or blackish, the yellow eyebrow and streak behind the ear-coverts and the cheek-stripe all well pronounced" (Sharpe). Hab., Ceylon and the greater part of the northern provinces of India from Sind to Assam and south to Tenasserim; also Java.

Jerdon says of this species ("Birds of India," Vol. II., p. 349):—"It chiefly frequents long grass and reeds on the banks of rivers and jheels, and was hence named by Buchanan Hamilton *Loria typhina*. It invariably breeds among high reeds, and usually in places liable to be inundated; and, as the breeding season is during the rains, the nest is thus unassailable except from the water. The nest is fixed to two or three reeds, not far from their summit, and the upper leaves are occasionally turned down and used in the construction of the nest, which is, in all cases that I have seen, made out of grass only. The nest is non-pensile—that is to say, it is fixed directly to the reeds, without the upper pensile support that the nest of (*P. baya*) has; and, in some cases, the eggs are laid before any tubular entrance is made, a hole at the side near the top forming the entrance. This, however, is often, but not always, completed during the incubation of the female; and, in other cases, a short tubular entrance is made at first, in a very few, prolonged to a foot or more. I have found the eggs in this case, as in the last, to be

generally two in number, three in a few; and in one nest I found five."

Hume ("Nests and Eggs," Vol. II., p. 124) says: "The eggs of this species seem to average slightly smaller than those of *P. baya*, but in every other respect they are precisely similar."

As previously stated, I had two Manyah Weavers for some years; they were both cocks, and although they built many nests, they seemed quite unable to complete them without the assistance of a hen; the cup was never added, nor the entrance tube.

Canary, millet, and oats are suitable seeds for this and the preceding black and yellow species, but they will eat many other seeds, although they do not care for rape. They are all absolutely hardy and long-lived, but a few insects help in keeping them vigorous.

MADAGASCAR WEAVER (*Foudia madagascariensis*).

In its breeding plumage the male is brilliant scarlet, the feathers of the back, of the lesser and median wing-coverts with black centres; flights and tail feathers black with brown borders; a black loreal streak extending to behind the eye; beak black; feet flesh-coloured; iris brown. The female is dull brown; the feathers of the upper surface, excepting on the rump, black centred; those of the head and neck less distinctly than the others; wing and tail feathers blackish with pale olive-brown margins; a well-defined pale eye-brow streak and a dusky line along the upper ear-coverts; under parts somewhat yellowish, whiter behind, flanks indistinctly streaked. Hab., Madagascar, Réunion, Mauritius, and many of the Seychelles islands. It has been introduced into St. Helena, where it has so increased as to have become troublesome.

M. Grandidier states that the breeding plumage is assumed in October, when the colour of the bill in the male changes from brown to black. The species does not frequent forests, but is otherwise distributed over Madagascar, and as soon as the breeding season is over, the birds assemble in large flocks to feed in the rice fields. "They do not breed in colonies, but in separate trees, and lay four or five eggs, which are of a pale bluish green and measure on an average 0.76 by 0.52."

Pollen describes the nest as "pear-shaped, with lateral entrance-hole, made of fine grasses, plaited between two or four branches of acacia, mimosa, tamarisk, etc., sometimes also in a reed-thicket. Lafresnays, on the other hand, figures the nest of a longish round shape and suspended between thin twigs." (Shelley, "Birds of Africa," Vol. IV. Part 2, p. 490.)

Dr. Russ, who first bred the species, speaks of the nest as retort-shaped, built by the cock bird, but partly lined by the hen; three to six (apparently white) eggs are laid and incubated, for fifteen days. Since Dr. Russ took the lead this beautiful bird appears to have been

freely bred in Germany; possibly the mistake made in England may consist in associating other Weavers with it, which Dr. Russ distinctly says must not be done.

I purchased a pair of this species in 1890, and had a second male and a male of the allied Comoro Weaver given to me about a year later. At first I believed that my friend Mr. Wiener had exaggerated the combative propensity of this species, and in 1892 I said as much in one of my articles in *The Feathered World*, which shows that one should never hesitate to accept without scepticism the evidence of a credible and experienced witness. I have, indeed, never, to my knowledge, lost any birds through the attacks of the Madagascar Weaver, but I have seen not a few of them badly scared at times.

My Madagascar Weavers, one of which was killed by my Comoro Weaver in 1897, never showed the slightest inclination to build a nest.

COMORO WEAVER (*Foudia eminentissima*).

Male in breeding plumage larger than *F. madagascariensis* and with a more powerful beak, and the feathers of the back, which are scarlet in the common species, are olivaceous in this; the abdomen and vent of this species are also brownish white, slightly tinged with rose instead of being scarlet. The female is olive-brown, with rather broad blackish streaks on the back; the median and greater coverts tipped with white. Hab., Comoro Islands.

Mr. Bewsher obtained this species in the Island of Johanna, where it is common; it is known to the natives as the "Paramoran"; he, however, tells us nothing of the wild life beyond the fact that the eggs are pale blue, and measure 0.84 by 0.6.

It is occasionally imported and sometimes sold as the Madagascar Weaver, to which it bears considerable resemblance. Dr. Russ only possessed one example of this species for a short time, and that was a sickly specimen, so he could say next to nothing about it. My experience is that in voice, manner of fighting, pugnacity, and excitability it resembles the Madagascar bird in every particular. After my male became a murderer, in 1897, his conduct increased in aggressiveness, and I had to remove him. I found a net of little use, as he evaded it every time; so I had to get a syringe and soak him with water before I could secure him. In a flight cage he was so frantic that after he had cut his face and ruined his plumage, I removed him to an aviary; he, however, died about a month later: having nothing to torment, he probably considered life no longer worth having.

This concludes the birds of the family *Ploceida*. We shall in the next part have to deal with the imported species of the family *Icterida*.



Index to Scientific Names.

	PAGE
<i>Egitha temporalis</i>	155
<i>Aidemosyne cantans</i>	174
— <i>malabarica</i>	173
— <i>modesta</i>	173
<i>Alario alario</i>	108
<i>Amadina erythrocephala</i>	175
— <i>fasciata</i>	174
<i>Amauresthes fringilloides</i>	184
<i>Amblyospiza albifrons</i>	198
<i>Ammodromus manimbe</i>	127
<i>Anthochera carunculata</i>	69
<i>Anthornis melanura</i>	70
<i>Artamus fuscus</i>	56
— <i>personatus</i>	55
— <i>sordidus</i>	55
— <i>superciliosus</i>	54
<i>Bathilda ruficauda</i>	168
<i>Calamospiza bicolor</i>	121
<i>Calliste brasiliensis</i>	83
— <i>cayana</i>	83
— <i>cyanoptera</i>	83
— <i>fastuosa</i>	80
— <i>festiva</i>	82
— <i>flava</i>	82
— <i>flaviventris</i>	83
— <i>guttata</i>	82
— <i>melanonota</i>	83
— <i>pretiosa</i>	83
— <i>tatao</i>	80
— <i>tricolor</i>	81
<i>Cardinalis cardinalis</i>	136
— <i>phoeniceus</i>	137
<i>Carduelis caniceps</i>	92
<i>Carpodacus erythrinus</i>	109
— <i>mexicanus</i>	110
— <i>purpureus</i>	110
— <i>sipahi</i>	110
<i>Cettia cantans</i>	26
<i>Chera progne</i>	189
<i>Chibia hottentotta</i>	53
<i>Chloris sinica</i>	137
<i>Chlorophanes spiza</i>	73
<i>Chlorophonia viridis</i>	74
<i>Chloropsis aurifrons</i>	41
— <i>hardwickii</i>	43
— <i>malabarica</i>	43
<i>Chondestes grammacus</i>	120
<i>Chrysomitris atrata</i>	95
— <i>barbata</i>	95
— <i>colombiana</i>	94
— <i>cucullata</i>	96
— <i>icterica</i>	96
— <i>pinus</i>	97
— <i>psaltria</i>	94
— <i>spinoides</i>	93
— <i>totta</i>	97
— <i>tristis</i>	92
— <i>uropygialis</i>	95
— <i>xanthogastra</i>	94
— <i>yarelli</i>	93
<i>Cinnamopteryx castaneofusca</i>	199
<i>Cissopis leveriana</i>	90
<i>Citticinia macrura</i>	22
— <i>suavis</i>	22
<i>Coccygria dufronsii</i>	151
<i>Cœreba cœrulea</i>	73
— <i>cyanea</i>	72

	PAGE
<i>Copsychus saularis</i>	21
— <i>sechellarum</i>	22
<i>Coryphospingus cristatus</i>	133
— <i>pileatus</i>	132
<i>Cyanospiza amœna</i>	124
— <i>ciris</i>	123
— <i>cyanea</i>	123
— <i>versicolor</i>	124
<i>Dacnis cayana</i>	73
<i>Dissemurus paradiseus</i>	53
<i>Diuca diuca</i>	132
<i>Diucopsis fasciata</i>	88
<i>Dryonastes chinensis</i>	44
— <i>perspicillatus</i>	45
<i>Emberiza aureola</i>	114
— <i>ciopsis</i>	116
— <i>elegans</i>	113
— <i>flaviventris</i>	113
— <i>fucata</i>	112
— <i>leucocephala</i>	116
— <i>luteola</i>	114
— <i>personata</i>	115
— <i>rutila</i>	115
<i>Emblema picta</i>	168
<i>Entomyza cyanotis</i>	70
<i>Eophona melanura</i>	138
— <i>personata</i>	139
<i>Euphonia cayana</i>	78
— <i>chlorotica</i>	76
— <i>elegantissima</i>	76
— <i>flavifrons</i>	76
— <i>lanirostris</i>	78
— <i>luteola</i>	78
— <i>musica</i>	76
— <i>nigricollis</i>	76
— <i>pectoralis</i>	78
— <i>violacea</i>	78
<i>Erythropsiza githaginea</i>	97
<i>Erythrura prasina</i>	162
— <i>psittacea</i>	161
— <i>trichroa</i>	161
<i>Estrilda astrilda</i>	156
— <i>cinerea</i>	156
— <i>rhodopyga</i>	156
<i>Foudia eminentissima</i>	205
— <i>madagascariensis</i>	205
<i>Fringilla canariensis</i>	92
— <i>maderensis</i>	91
— <i>spodiogenes</i>	92
— <i>teydea</i>	91
<i>Fringillaria capensis</i>	119
— <i>sahare</i>	118
— <i>striolata</i>	118
— <i>tahapisi</i>	117
<i>Galeoscoptes carolinensis</i>	27
<i>Garrulax albogularis</i>	47
— <i>leucolophus</i>	46
— <i>pectoralis</i>	47
— <i>picticollis</i>	45
<i>Geocichla citrina</i>	16
— <i>cyanonotus</i>	17
<i>Grallina australis</i>	34
<i>Grammatoptila striata</i>	48
<i>Gubernatrix cristata</i>	133
<i>Guiraca cœrulea</i>	141
— <i>cyanea</i>	142
— <i>parellina</i>	142

	PAGE
<i>Harporhynchus rufus</i>	27
<i>Hedymeles ludovicianus</i>	140
— <i>melanocephalus</i>	141
<i>Hemixus flava</i>	40
<i>Hyphantornis cucullatus</i>	201
— <i>melanocephalus</i>	201
— <i>superciliosus</i>	203
— <i>velatus</i>	202
— <i>vitellinus</i>	202
<i>Hyphanturgus brachypterus</i>	199
<i>Hypochoera amauropteryx</i>	186
— <i>chalybeata</i>	186
— <i>ultramarina</i>	186
<i>Hypocolius ampelinus</i>	51
<i>Hypophæa chalybea</i>	79
<i>Iole maclellandi</i>	40
<i>Junco hiemalis</i>	125
— <i>oregonus</i>	125
<i>Lagonosticta brunneiceps</i>	153
— <i>cœrulescens</i>	152
— <i>larvata</i>	151
— <i>perreini</i>	152
— <i>rufopicta</i>	152
— <i>senegala</i>	153
— <i>vinacea</i>	151
<i>Laniarius quadricolor</i>	58
<i>Lanius lahtora</i>	57
— <i>vittatus</i>	58
<i>Liothrix luteus</i>	28
<i>Malacias capistrata</i>	49
<i>Malurus cyaneus</i>	59
<i>Meliphaga phrygia</i>	66
<i>Melithreptus lunulatus</i>	65
— <i>validirostris</i>	65
<i>Melophus melanicterus</i>	119
<i>Melopyrrha nigra</i>	148
<i>Melospiza fasciata</i>	128
<i>Merula bouboul</i>	14
— <i>cardis</i>	15
— <i>castanea</i>	16
— <i>mandarina</i>	15
<i>Mesia argenteauris</i>	30
<i>Mimus polyglottus</i>	26
— <i>saturninus</i>	27
<i>Monticola cyanus</i>	19
— <i>saxatilis</i>	18
<i>Munia atricapilla</i>	182
— <i>castaneithorax</i>	179
— <i>ferruginea</i>	180
— <i>flavipyrina</i>	180
— <i>maja</i>	180
— <i>malacca</i>	182
— <i>nisoria</i>	178
— <i>oryzivora</i>	183
— <i>pectoralis</i>	178
— <i>punctulata</i>	178
— <i>subundulata</i>	178
— <i>topela</i>	178
<i>Mycerobas melanocephalus</i>	139
<i>Myiophonus horsfieldi</i>	20
<i>Myzantha garrula</i>	69
<i>Neochmia phaeton</i>	161
<i>Niltava sundava</i>	60
<i>Oriolus indicus</i>	52
— <i>kundoo</i>	52
<i>Ortygospiza polyzona</i>	176

INDEX TO SCIENTIFIC NAMES.

	PAGE		PAGE		PAGE
<i>Oryzoborus crassirostris</i>	143	<i>Pyctorhis sinensis</i>	50	<i>Sporæginthus melpodus</i>	155
— <i>torridus</i>	142	<i>Pyrauga æstiva</i>	86	— <i>subflavus</i> ?	154
<i>Otocompsa jocosæ</i>	39	— <i>erythromelas</i>	87	<i>Sporopipes frontalis</i>	197
— <i>leucogenys</i>	39	— <i>ludoviciana</i>	87	— <i>squamifrons</i>	197
<i>Pardalotus punctatus</i>	64	— <i>rubra</i>	86	<i>Staganopleura guttata</i>	168
<i>Paroaria capitata</i>	134	— <i>saira</i>	87	<i>Steganura paradisæ</i>	188
— <i>cucullata</i>	136	<i>Pyromelana afra</i>	193	<i>Stephanophorus leucocephalus</i>	84
— <i>larvata</i>	134	— <i>aurea</i>	193	<i>Stictoptera annulosa</i>	173
<i>Parus cyaneus</i>	33	— <i>capensis</i>	193	— <i>bichenovii</i>	172
— <i>varius</i>	33	— <i>flammeiceps</i>	194	<i>Stictospiza formosa</i>	155
<i>Passer arcuatus</i>	100	— <i>franciscana</i>	195	<i>Struthidia cinerea</i>	51
— <i>diffusus</i>	101	— <i>nigriventris</i>	195	<i>Sycalis arvensis</i>	104
— <i>euchlorus</i>	102	— <i>orix</i>	195	— <i>flaveola</i>	102
— <i>luteus</i>	102	<i>Pyrrhula griseiventris</i>	111	— <i>pelzelni</i>	103
— <i>simplex</i>	101	<i>Pyrrhuloxia sinuata</i>	137	<i>Tachyphonus coronatus</i>	88
— <i>swainsoni</i>	101	<i>Pyrrhuloxia sinuata</i>	79	— <i>cristatus</i>	88
<i>Passerculus sandwichensis</i>	127	<i>Pyrrhuloxia sinuata</i>	157	— <i>luctuosus</i>	88
<i>Passerella iliaca</i>	129	— <i>citerior</i>	158	— <i>melaucis</i>	87
<i>Penthetria albonotata</i>	190	— <i>melba</i>	157	<i>Tæniopygia castanotis</i>	171
— <i>ardens</i>	189	— <i>phœnicoptera</i>	157	<i>Tanager bonariensis</i>	85
<i>Penthetriopsis macrura</i>	190	<i>Quelea erythrops</i>	196	— <i>cana</i>	84
<i>Petronia albigularis</i>	99	— <i>quelea</i>	196	— <i>cyanoptera</i>	84
— <i>dentata</i>	99	<i>Rhamphocelus brasilius</i>	85	— <i>ornata</i>	85
— <i>flavicollis</i>	98	— <i>jacapa</i>	86	— <i>palmarum</i>	84
— <i>petronella</i>	100	<i>Saltator aurantirostris</i>	89	— <i>sayaca</i>	84
— <i>petronia</i>	98	— <i>magnus</i>	89	<i>Tanagrella cyanomelana</i>	80
<i>Phœticus aureiventris</i>	140	— <i>similis</i>	89	— <i>velia</i>	80
<i>Phonipara bicolor</i>	150	<i>Serinus albigularis</i>	107	<i>Tetranura regia</i>	188
— <i>canora</i>	148	— <i>angolensis</i>	107	<i>Textor albirostris</i>	199
— <i>lepidæ</i>	150	— <i>canicollis</i>	104	<i>Trachycornus ochrocephalus</i>	40
— <i>pusilla</i>	150	— <i>flaviventris</i>	105	<i>Trochilopteron canorum</i>	48
<i>Phrygilus alaudinus</i>	132	— <i>icterus</i>	106	— <i>erythrocephalum</i>	48
— <i>fruticeti</i>	131	— <i>leucopygius</i>	107	<i>Turdus albiventris</i>	13
— <i>gayi</i>	131	— <i>pallidus</i>	108	— <i>falklandicus</i>	11
<i>Pinicola enucleator</i>	111	— <i>pulcherrimus</i>	105	— <i>fuscus</i>	11
<i>Pipilo erythrophthalmus</i>	129	<i>Sialia sialis</i>	24	— <i>grayi</i>	13
— <i>maculatus</i>	130	<i>Sitagra capensis</i>	200	— <i>leucornis</i>	12
<i>Pipridea melanonota</i>	80	— <i>luteola</i>	200	— <i>migratorius</i>	10
<i>Pitylus fuliginosus</i>	90	— <i>monacha</i>	200	— <i>mustelinus</i>	9
<i>Ploceus atrigula</i>	204	<i>Siva cyanuroptera</i>	32	— <i>nanus</i>	10
— <i>baya</i>	203	<i>Spermestes bicolor</i>	184	— <i>rufiventris</i>	12
— <i>bengalensis</i>	204	— <i>cucullata</i>	185	— <i>swainsoni</i>	11
— <i>manyah</i>	204	— <i>nana</i>	185	— <i>tristis</i>	13
— <i>megarhynchus</i>	204	— <i>nigriceps</i>	184	<i>Uraginthus angolensis</i>	160
<i>Poephila acuticauda</i>	166	<i>Spermophila albigularis</i>	144	— <i>granatinus</i>	160
— <i>cincta</i>	166	— <i>cœrulescens</i>	147	— <i>phœnicotis</i>	158
— <i>leucotis</i>	165	— <i>castaneiventris</i>	145	<i>Uragus lepidus</i>	112
— <i>mirabilis</i>	164	— <i>cucullata</i>	146	<i>Urobrachya axillaris</i>	191
— <i>personata</i>	165	— <i>grisca</i>	144	— <i>bocajii</i>	192
<i>Poecetes gramineus</i>	127	— <i>gutturalis</i>	147	<i>Uroloncha acuticauda</i>	177
<i>Prothemadera novæ-zealandiæ</i>	64	— <i>hypoleuca</i>	144	— <i>domestica</i>	178
<i>Psaroglossa spiloptera</i>	40	— <i>lineata</i>	146	— <i>striata</i>	177
<i>Pseudochloris citrina</i>	130	— <i>lineola</i>	148	<i>Vidua hypocherina</i>	187
<i>Ptilotis auricomis</i>	67	— <i>minuta</i>	145	— <i>principalis</i>	187
— <i>flava</i>	67	— <i>nigro-aurantia</i>	146	<i>Volatinia jacarini</i>	143
— <i>fusca</i>	69	— <i>ocellata</i>	147	<i>Zonæginthus bellus</i>	170
— <i>leucotis</i>	66	— <i>ophthalmica</i>	146	<i>Zonotrichia albicollis</i>	121
— <i>lewini</i>	68	— <i>plumbea</i>	144	— <i>canicapilla</i>	122
<i>Pycnonotus atricapillus</i>	36	— <i>superciliaris</i>	145	— <i>leucophrys</i>	121
— <i>aurigaster</i>	37	— <i>torquella</i>	146	— <i>pileata</i>	122
— <i>barbatus</i>	38	<i>Spermospiza guttata</i>	198	<i>Zosterops cœrulescens</i>	61
— <i>hæmorrhous</i>	35	— <i>hæmatina</i>	198	— <i>capensis</i>	63
— <i>leucotis</i>	36	<i>Spindalis zena</i>	88	— <i>flava</i>	63
— <i>pygæus</i>	34	<i>Spiza americana</i>	130	— <i>japonica</i>	63
— <i>sinensis</i>	38	<i>Spizella socialis</i>	126	— <i>simplex</i>	62
— <i>xanthopygus</i>	36	<i>Sporæginthus amandava</i>	153	— <i>palpebrosus</i>	61

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